

S C H O L A S T I C

# COACH

MARCH/APRIL 1978



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- 1977 STATE FOOTBALL CHAMPIONS



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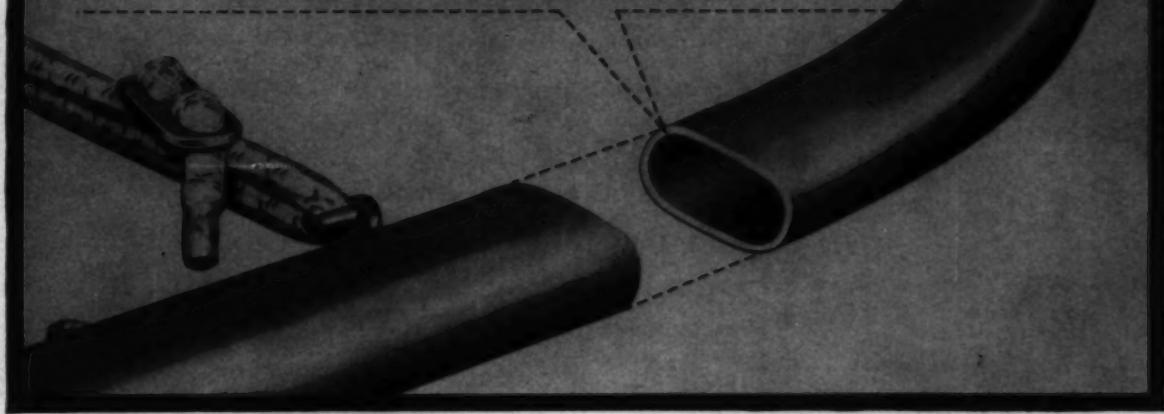
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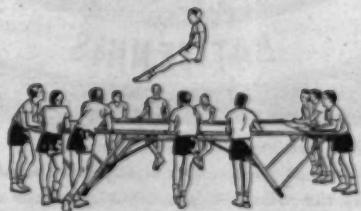
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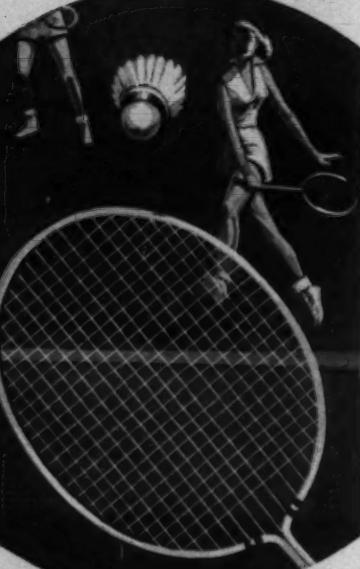
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# SCHOLASTIC COACH

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VOLUME 27 • NUMBER 7 • MARCH 1958

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# What a little education can do

**A**LMOST every week or so the swift couriers of Mr. Summerfield will "hit" us with a spiral package from some foreign shore. Invariably it will turn out to be a technical sports magazine—maybe the *Initions Nos' Sportifs* from France, the *Sport Es Tudomany* from Hungary, the *Traguardi* or *Atletica Pesante* from Italy, or perhaps the *Czechoslovak Sport*.

And just as inevitably, we'll find something in it from *Scholastic Coach!* Our neighbors over there can't seem to get enough of American savvy in basketball and track, and have seized upon *Scholastic Coach* with a fervor that has warmed the cockles of our heart.

They're constantly importuning us for reprinting privileges, and we've been happy to comply. Their No. 1 request has been for our "magnifique" picture sequences, particularly in track. And no wonder. Where else in the world can you find the form of so many champions so clearly and tastefully delineated?

We're mighty proud of the fact that the Ron Delany sequence on pages 12-13 marks the eighth *foto-form analysis of a 1956 Olympic champion* that has appeared in *Scholastic Coach*. (Others include Bob Richards, Charlie Dumas, Tom Courtney, Charlie Jenkins, Greg Bell, Parry O'Brien, and Lee Calhoun.)

No other magazine can make that claim!

## THE BOYS WITH POISE

**T**HE nice young ladies in charge of our reception room are still mumbling about the "blackout" in their area several weeks ago. Their world suddenly went dark when two huge figures blocked out the overhead lighting. "I thought it was an invasion from Mars," one of the girls told us later.

But the kids were thrilled when

the "Martians" turned out to be a couple of pretty good basketball players named Dolph Schayes (6' 8") and Johnny Kerr (6' 9"). The boys from Syracuse were in town for a ball game and had dropped in on us for a chat.

As always, when confronted by such out-sized athletes, we were struck by their poise and social grace; and thought what a wonderful contribution basketball has made in this respect. Where 25 years ago the out-sized student was an object of ridicule, today he's a big wheel in hoop circles and has a great chance of developing both psychologically and socially.

There's absolutely nothing goonish about them. They're perfectly adjusted and even take an impish delight in the commotion they create among us poor normal mortals. (All the folks in our office found some excuse to "casually" stroll by our huddle and "casually" look the "Martians" up and down, particularly up.)

Since Dolph was flaunting a pretty shiner over his left eye, we kidding-

ly said: "I see you've been visiting with Mr. Pettit and Mr. Lovellette."

"Pettit, heck," replied Dolph. "My good friend, Johnny Kerr, gave me that blinker."

We looked inquiringly at the big red-head.

"That was to teach him a lesson," grinned 6-9 Johnny, looking down at 6-8 Dolph. "We don't want any little guys fooling around in the pivot."

**T**HE grace and articulateness of these professional athletes crystallized a thought that's been dribbling around in our minds for years. We've noticed that the pro athletes who make the best impression at banquets, on radio and TV, and other public functions are, almost without exception, college graduates.

Listen to a pro basketball or football player (practically all of whom are college men) being interviewed or making a little speech, and invariably he'll be poised, relaxed, and quite articulate.

Then listen to a pro baseball or hockey star (few of whom have gone to college) express himself, and the result will—about 80% of the time—be downright painful.

This happenstance was forcibly demonstrated to us at the recent banquet of the Better Sports Club of Arlington, Va. At the speakers' table with us were more than a dozen famous athletes from the pro baseball and football worlds—each of whom was called upon for a brief speech.

The football stars, without exception, carried out their assignments excellently. The baseball stars, with two notable exceptions, fumbled rather woefully. The exceptions were Robin Roberts and Dick Groat, both of whom—significantly—are college graduates.

**T**HE poise of the college-trained athletes gave us a glow. Here, we  
(Concluded on page 40)

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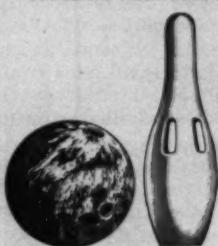
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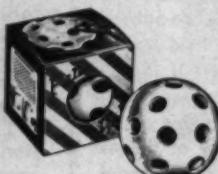
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By LEW WATTS

Former Minor Leaguer and College Coach, Summit, N. J.

# THE BIG LEAGUER'S APPROACH TO BATTING

**I**N WRITING a book on *The Fine Art of Batting*, the writer attempted to cover completely every vital element of the hitting game, both from the theoretical and practical standpoints.

To lend validity to the analyses and with the hope of injecting a convincing new idea or two, letters were sent to many outstanding major league ballplayers.

The response was most gratifying. The information which these big leaguers supplied would comprise a veritable encyclopedia of batting. Readers of *Scholastic Coach*, I feel sure, will find these ideas highly enlightening.

The question put to these players was: "What do you consider to be the most important fundamental in batting and how would you advise young ballplayers to apply it to themselves?"

The replies were as follows:

**TED WILLIAMS:** In my book there are three "musts" on the mental side. These are:

1. Get a good ball to hit.
2. With the count less than two strikes and the pitch in a spot that you know is tough for you to hit, or if the pitcher has fooled you, take the pitch.
3. If the count goes to two strikes, concede something to the pitcher. Choke up on the bat a little, sacrifice some of your power for more control of the bat. Don't make a conscious effort to pull the ball, but concentrate on meeting it squarely.

On the physical side, I also count three basic requirements in the "absolute must" column. These are:

1. Develop strong, quick hands and wrists which whip the bat through the ball at the instant of impact.
2. Keep your weight forward on the balls of your feet toward the toes. If you let your weight rest on your heels, you're wasting your time in baseball.
2. Be sure you have plate coverage. By that I mean you should be standing so that you can hit any ball that's pitched in your strike zone.

There's no such thing as overemphasizing those six fundamentals. I have never known a hitter who failed because he practiced those six fundamentals too much.

**STAN MUSIAL:** 1. Try to get a light bat with even balance.

2. Keep your eye on the ball up to the time it hits the bat. If you look up when you swing, you can be badly fooled by a pitch that breaks at the last second.

3. Stride with the pitch.
4. Hold your arms away from your body for a free, full swing.

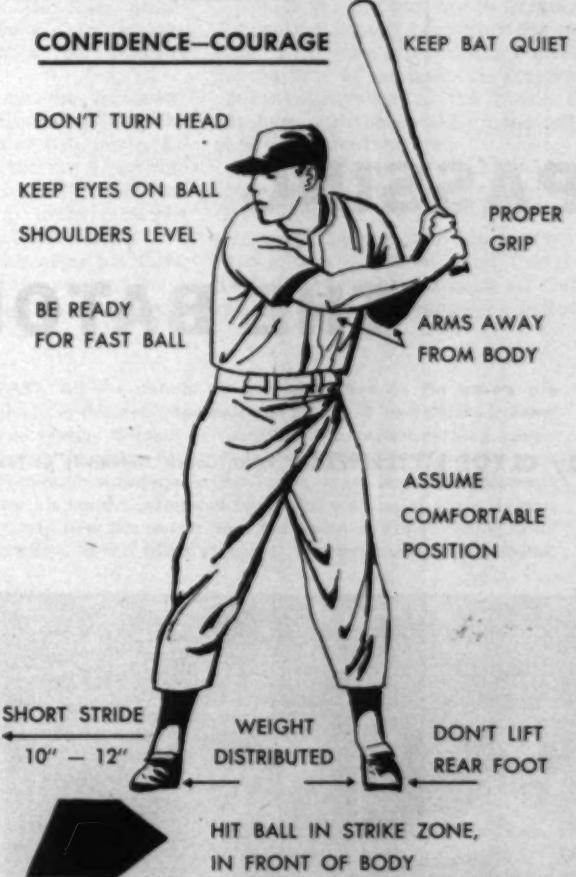
5. Wait for a pitch in the strike zone.

6. Always be set for the fast ball.

7. My own theory is that I try to hit the ball where it is pitched.

There's one unbreakable rule: If you hit well with your own particular stance and swing, don't listen to any suggestions for a change. There's no one correct way to bat.

**TED KLUSZEWSKI:** I would say there are several  
(Continued on page 44)



Based on a drawing from "Championship Baseball" (Prentice-Hall)



**FIRST PASS:** Receiver extends arm backward keeping elbow slightly bent, palm down, fingers out, thumb in. Receiver passes baton with upward swing of arm.



**LAST PASS:** In this near perfect pass (Gainey to Wilden), both runners are moving at top speed, the passing arm is fully extended, and there's daylight between the men.

## PASSING THE BATON

By CLYDE LITTLEFIELD, Track Coach, University of Texas

OUR huge spectacular relay carnivals have probably done more to popularize track in the United States than any other single medium. Anywhere from 30,000 to 50,000 witness the great carnivals at Pennsylvania, Drake, Kansas, Texas, and the Coliseum in Los Angeles.

Since relay racing is a vital part of every track meet, it will behoove the coach to concentrate on the development of smooth foursomes.

Boys should be trained for the relays in the same manner as for the individual events. If an athlete is being readied for the one-mile relay, for instance, he should be trained like a quarter-miler.

The relays require several specialized skills, of course. The boys must learn the intricacies of passing the baton, team strategy, and running their particular leg.

One of the coach's most strategic functions is positioning the men to greatest advantage. The strategy may vary. The conventional method is to place the second-best man first, the fourth-best man second, the third-best man third, and the best man last.

However, many coaches, especially in the one-mile relay, place their third-best man first, their fourth-best man second, their second-best man third, and their best man last.

Since the pole is a distinct advantage in the mile relay, it might be well to begin with a fast starter—a fellow who's strong and not easily thrown off-balance. If you have a boy who tends to become jittery while awaiting the baton, it might be wise to lead off with him.

Another important factor in determining the running order is the psychological make-up of the boys—knowing whether the boys run best when in front or behind. Some kids cannot judge their pace or lose



confidence when running behind. Others like to lag behind and close with a rush, while some react like firehorses to the excitement of the race and run better as it progresses. It's important to place your men where they'll be able to give their very best.

The coach should also analyze the opposition, and decide whether or not they can be run "off their feet." The poorly coached or inexperienced team seldom know much or anything about pace and often run themselves down in the early part of the race, particularly in the longer relays.

The baton exchange is extremely important, especially in the sprint relays. Here's where you can "steal" those precious split-seconds or compensate for the opponents' superior speed. Even in the longer relays, a great advantage may be gained by good passing.

The passing form employed in the distance relays differs only slightly from that in the sprint relays. The basic principle is the same: To have both runners exchange the baton while moving at near maximum speed as possible.

The receiver should start from the back end of the touch-off zone. This enables him to use the remainder of the distance to assure the pass and gain momentum for the start.

As his teammate approaches, the receiver should start running slowly, timing his speed with that of the incoming runner. (This applies to relays one-mile and longer.) He extends his right hand and arm backward with the palm up and thumb in, while the incoming runner carries the baton in his left hand, holding it on one end with the back of his hand up.

If the incoming runner has a fast finish, the exchange should be made in the front part of the "touch-off"

zone. If he has a slow finish, the pass should be made in the back part of the touch-off zone.

The incoming man approaches toward the right of the receiver and places the stick into the receiver's hand with a downward motion of the arm. In every good exchange, there'll be daylight between the passer and the receiver and the boys will be running in a straight course. Upon accepting the baton, the receiver immediately switches it to his left hand and moves out fast as in a regular race.

The receiver should race down the track in a straight line, while the passer should always stay in the lane until his opponent passes him.

If ahead, the receiver should make sure not to loaf. If behind, he should attempt to gain distance for the first 30 or 40 yards.

The sprint relays call for a somewhat different method of exchange. Prior to the exchange, the receiver marks off a line or places a white handkerchief about six or seven strides back of and beyond the end of the back line. He then places himself in the back part of the touch-off zone in a low running position.

Immediately upon the incomer's arrival at the receiver's marker, the latter starts ahead at full speed. He glances backward for the first three strides to align himself with the runner and then looks straight ahead as he presses forward.

About four strides after his start, he extends his right arm and hand to the rear, keeping the elbow bent

a little. The palm of the hand is down and the back of the hand is up, with the fingers extended out with the thumb in—as if grabbing for something with the open hand.

The runner carries the baton in the same manner as previously described. But the delivery is made with an upward swing of the arm and hand. The exchange is effected in the front part of the zone, with both runners going at full speed.

Constant practice with his partner will enable the receiver to perfect his timing with reference to his place mark behind the touch-off zone.

Coordination of all the body movements is essential to good passing. About three-quarters of our practice is conducted on the grass—at half and three-fourths speed—to perfect these smooth movements.

The relay foursome must practice together. If the exchange is being made too soon, move the check mark back. If the pass is being made beyond the front end of the zone, then move the mark up closer.

Whenever the race is run in lanes, the runner should keep near the inside of the lane in rounding curves. At the time of the pass, the receiver should always be on the inside of the lane and the passer on the outside to prevent injuries.

This paper has outlined just several methods of passing the baton. Other methods are also feasible. All will work if the correct fundamental principle is mastered—and that is, having both men running at full speed when the exchange is effected.

**SPRINT BATON PASS:** All the details of form described in the article are beautifully exemplified in this exchange between the No. 3 man (Hollis Gaine) and the anchor man (Bobby Wilden) of Texas's world-record-breaking sprint-relay foursome. Caught in action at the Penn Relays last year, the two boys are making a left-to-right exchange in the inside lane. Note the receiver's fine body lean, how his hand is extended backward with palm down, fingers out, and thumb in, and how the passer slips the baton into the waiting hand with an upward motion. In this blind exchange, runners move at top speed.



## ELIAS GILBERT, RECORD-BREAKING HURDLER

**NO. 1:** Gilbert approaches barrier with weight slightly forward, body up on toes, arms waist high, and eyes in a fixed position.

**NO. 2:** Gilbert, starting body pitch, begins raising high on toes. Lead leg starts upward and arms move into proper position for balance. Note drive off pushing (left) foot.

**NO. 3:** In flight, forward accent becomes evident and arms are moved from body in reaching manner. Note how right arm rides smoothly with leading leg and how head is directly over knee. Bend at waist helps athlete relax and aids balance.

**NOS. 4-6:** Top of flight. Note straight-knocked-knee and how trailing leg is starting forward without tension (4); trailing leg being pulled forward (5); and body directly over barrier (6). Inverted toe on trailing leg shows here.

**NO. 7:** Beginning of descent. Note perfect balance and how arms are coming back gathering for running action to follow.

**NO. 8:** Still in flight. Note how trailing leg is getting prepared for its forward swing and next running stride.

**NO. 9:** Once on ground, leading leg becomes pivot from which body swings forward. Note perfect head-to-toe alignment.

**NO. 10:** Notice leading leg in pushing position high on toe, and how trailing leg is almost ready to touch. Gilbert has perfect balance to maintain speed to next barrier.



By WILBUR L. ROSS, Winston-Salem (N. C.) Teachers College

## HIGH HURDLING

ONE of track's supposedly inviolate "ultimates"—the 13 sec. flat high hurdle timing—may go the way of the 15' vault, the 60' shot, and the 9.4 hundred before Elias Gilbert, the lithe junior wonder from Winston-Salem (N. C.) Teachers College, graduates in 1959.

A 14.4 (39") hurdler at Linden (N. J.) High and a 14.9 performer over the 42" barriers two years ago, Gilbert progressed to a 13.4 world-record tying effort last summer! All in all, he has run under 14 on 12 occasions, including three 13.6's and three 13.7's, and currently holds the All-Comer record for Germany (13.6) and the John Thornton Award for being the top high hurdler (13.9) to compete in Great Britain in 1957.

Quite an achievement for a lad who still hasn't reached his peak!

What makes his great timings incredible is that he possesses only ordinary straightaway speed. In fact, he has never broken 10 for the 100!

Gilbert's success stems directly from efficient form, as demonstrated in the accompanying sequence (posed especially for *Scholastic Coach*). This article will trace the development of this exceptional form and, I hope, illustrate how hard work pays off.

A 21-year-old, 155-lb., 5-11 athlete, Gilbert possesses wonderful muscle definition. He's a fast, agile, splendidly coordinated lad who, thrown in against the hurdling "greats" while still a freshman, was compelled to work hard to overcome his weaknesses.

His freshman season fell in 1956, an Olympic year, and he was forced to learn fast. After a fairly good indoor season, during which he competed against the likes of Harrison Dillard, Lee Calhoun, Jack Davis, and Joel Shankle, Gilbert began to round out into the kind of timber-topper I had hoped he'd become.

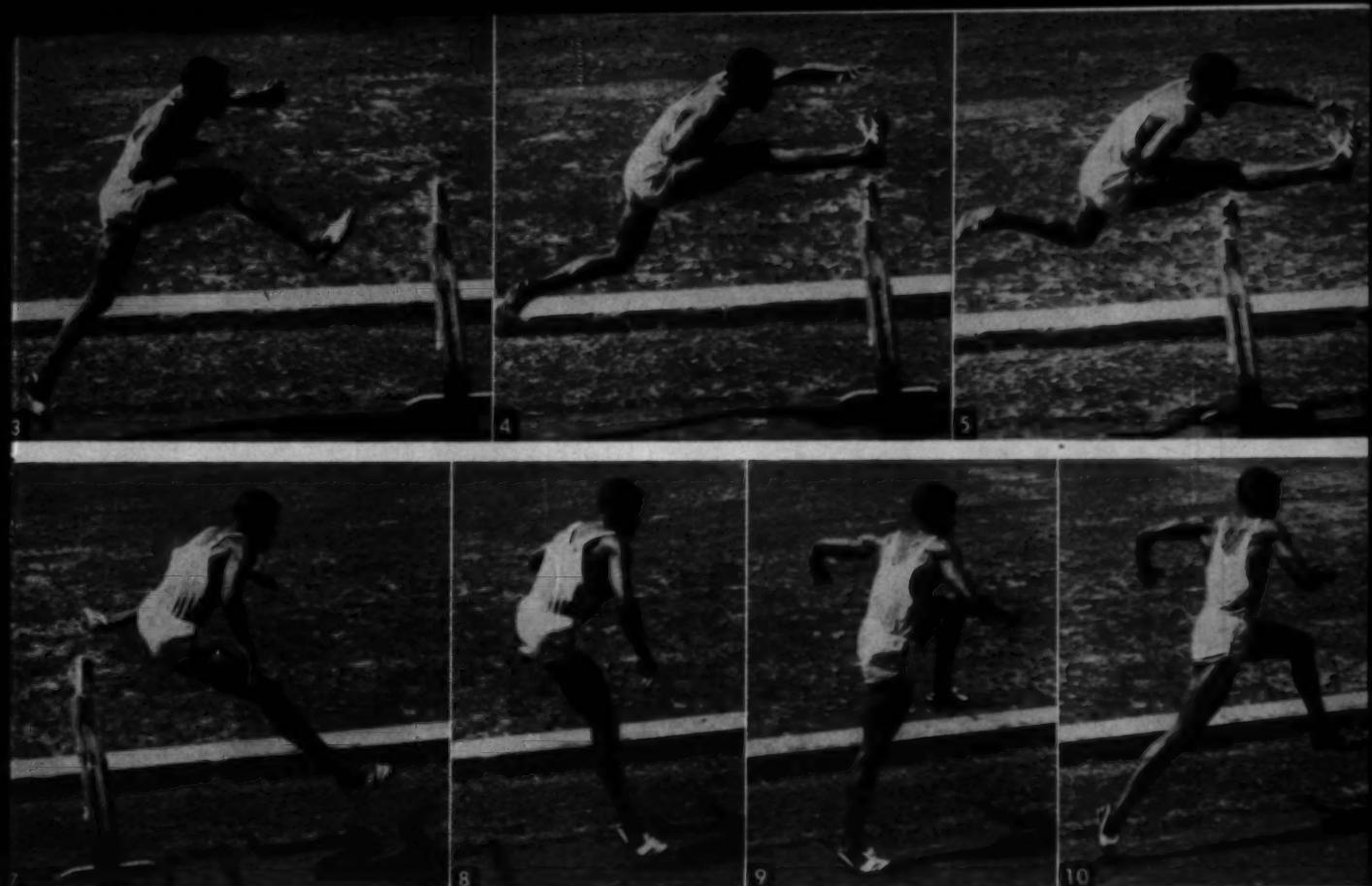
He achieved best times of 7.2 in

the 60-yard hurdles, 6.2 at 50 yards, and 8.5 at 70 yards. This was most promising because I knew the maturing process would help bring him out.

Moving outdoors, Gilbert posted two 13.8's in the 120-yard highs in the Central Intercollegiate Athletic Association championships and a 13.9 in the Carolinas AAU Championships. He then competed in a series of West Coast meets, leading to the Olympic tryouts. Though he qualified for the tryout finals, his lack of poise and experience kept him from making the team.

The Winston-Salem timber-topper made great strides in 1957. He ran many great races, defeating Lee Calhoun several times (after failing to beat him the year before). His most remarkable efforts, however, were in two races he lost in photo finishes.

Running in the NAIA championships, Gilbert and Calhoun were



## THE GILBERT WAY

timed at 13.6, with Calhoun being declared the winner. In an even greater race in the Compton Invitational, Gilbert and Milt Campbell finished in 13.4, a world-record tying effort, with Calhoun's 0:13.5 good only for a third place. But Campbell was declared the winner.

The AAU sent Gilbert to Europe last summer and he continued to achieve great times, setting national records in several nations. Gilbert's record is recapitulated not as a build-up, but to demonstrate how much a boy can improve in two short years after high school.

When he reported for fall practice in early October, 1955, I detected the following defects in his mechanical techniques:

1. Kicking up to the hurdle, instead of kicking straight at it.

2. Floating over the hurdle, instead of taking an elongated step to shorten his arch on the running side of the barrier.

3. Lagging in the trailing leg, instead of hip-circling with speed and purpose.

4. Using poor arm action while running—arms hanging around his knees very tensed, instead of being used in a smoothly synchronized swing.

5. Stopping momentarily after each hurdle, instead of remaining on the toes to help provide bounce and drive to the next barrier.

6. Landing off-balance, instead of concentrating on trying to remain on balance.

These factors indicated a lack of rhythm, which is most essential in good hurdling.

To convert this raw material into a finished hurdler, I had to make Gilbert understand one thing: Hurdling requires many hours of **PERFECT** practice, and the athlete must be willing to labor toward perfection.

The boy must regard the hurdle

not as a barrier, but as an integral phase of his effort to run 120 yards as fast as he can. Psychological aids can overcome many of the physical problems in the formative stages. The coach must prevent the boy from becoming discouraged over early failures and at the same time acknowledge his successes whenever the opportunity presents itself.

This is what the writer did throughout Gilbert's trial-and-error period. The writer firmly believes that a boy's adjustment from the 39" high school barrier to the 42" college hurdle is purely psychological.

Gilbert achieved his progress by diligently applying himself to the proper hurdling techniques prescribed by his coach, which may be outlined as follows:

**Flight:** Lead leg, trailing leg—hip circle, inverted toe.

(Continued on page 67)

# Middle-Distance Strategy and Tactics

**S**TATEGY, technique, or tactics has never won a race where courage has been lacking or where the athlete has failed to prepare physically for competition. There's no substitute for courage and conditioning. Strategy enters afterward — when you begin dealing with courageous and well-conditioned athletes. It then becomes increasingly important. Almost without exception, the outcome of close races hinges on strategy.

Sometimes, of course—as when matching strides with a Ron DeLany or a Tom Courtney—the profoundest of strategy will avail you nothing.

Clever tactics are usually learned the hard way. As in all areas of life, there simply is no better teacher than experience. One of the best examples of this occurred in a national collegiate championship meet several years ago. A well-known midwestern coach was instructing his young 440 man on his race tactics for a preliminary heat. The boy, just a sophomore, was a fine runner (47.7), but he had drawn the outside lane. The coach was laying out every step of the race for him to prevent him from getting lost in the 8-man field. "At 300 yards you must be in the lead, so you must blast the first 220," instructed the coach. "If you do that, you can drop into the pole and then control the race."

Now this isn't bad strategy for an athlete with that boy's ability. However, the coach had failed to do enough checking on the other runners. Running in lane two was a great prospect (who later became national champion), and his race strategy simply was to run a front race from start to finish.

As the race got underway, it became clear what was going to happen. Both boys were determined to front-run the race. At 300 yards they were 30 yards ahead of the field, stride for stride, in a fantastically fast pace. The youngster on the outside simply didn't have the strength to cope with the boy on the inside, and at 350 yards he slowed down to a walk. As a result, he failed to qualify. With different strategy he could have qualified easily, and probably have scored high in the meet.

A few experiences such as the above has led more than one coach to extreme caution concerning pre-meet instructions. It has even driven a few to adopt Frank Hill's (former Northwestern coach) standard pre-race instructions. As the shaking athlete came over for last minute instructions, Frank, with a wrinkled brow, would bellow, "Hurry back." It usually was good for a chuckle, and his athletes more often than not followed his instructions.

It's evident, of course, that there's much more to strategy than pre-race instructions. In fact, the strat-

egy and tactics for even a single race often extend over weeks or months. Jack Lovelock, the 1,500-meter winner in the 1936 Olympics, planned his race for more than two years. He studied his possible opponents until he knew the type of race each would run. He then capitalized on their shortcomings and went on to win in record time.

Roger Bannister planned his assault on the 4-minute mile for months, and hundreds of other champions plan their race tactics as far in advance.

During the past summer, I spent a week with Franz Stampfl (coach of Chataway, Bannister, etc.). From our conversations, I concluded that his major emphasis is placed on developing extreme confidence in his athletes. He doesn't profess to have a revolutionary training program, but his enthusiasm for the



**By DON CANHAM, Track Coach, University of Michigan**



## OLYMPIC CHAMPION

## STRIDE STUDY OF RON DELANY

**NO. 1:** Delany's style is not typical but a most efficient method of covering ground while conserving energy. He runs with a short stride, as do most Europeans. As a result, the body is quite erect and there's practically no bounce—so often seen in our longer-striding athletes.

**NO. 2:** Left foot has now swung forward and raised knee. Knee hasn't been drawn up, as that requires additional energy—which Delany's trying to conserve. It isn't necessary to drive knee up, since he has no intention of taking a long stride. Note also erect trunk and toes pointing straight ahead.

**NO. 3:** Delany is now merely letting left foot fall to track, rather than reaching out for additional stride length. Here again there's conservation of energy—as gravity rather than muscular energy is being used to get left foot back to track.

**NO. 4:** Due to Delany's short stride and erect trunk, you can note a very low back kick. Those who use "foot

fall" to swing knee and leg into next stride have learned that "the higher the back kick, the longer the stride."

**NO. 5:** Of interest here (as you glance at photos on either side) is Delany's almost total lack of bounce—an extremely desirable feature. Men who bounce usually do so because of very long strides and the resulting temporary checking of momentum as lead foot hits track.

**NO. 6:** Classic photo of a perfectly relaxed athlete in full stride. Note how everything is directed forward down the track—eyes, arm action, head, and feet.

**NO. 7:** Note Delany's foot dropping down toward track. It appears as though it will land heel first, but it won't, as body is coming forward over foot. Foot will land on "ball." Complete action is "ball-heel-ball."

**NO. 8:** Completion of leg cycle. Remember, style never made a runner, and it's a mistake to copy someone else unless that style is comfortable and natural.

## PLAYTIME BLEACHERS



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sport itself inspires his athletes to greater amounts of work and a feeling that they can master any situation. That, of course, is coaching at its best.

All athletes claim they have courage and desire. Yet the will to win is useless without also a will to prepare. Preparation is far more important than any other single factor in track.

Though training programs may differ widely, the one constant factor is courage. Despite what some of our leading psychologists say, a wise coach can develop courage in a runner. Fear of the track is often the result of unfamiliarity with the conditions the boy will face in competition. Thus, the wise coach will expose the athlete to all the possible pace and race conditions he might face in the future. This, plus a constant effort to build up the athlete's confidence in other ways, is the first step in successful strategy.

Dean Cromwell, the former Southern California coach, constantly greeted his men with "Hi, Champs!" or some such lofty salutation when they'd report to him daily. Even the lowliest freshman might receive a slap on the back and a "Mr. Champion" label.

I once asked the good Dean why he persisted with this ruse year after year. He winked and said, "You know, some of those boys really never doubted my word. They took those titles pretty seriously." In any case, Dean Cromwell coached more National and Olympic champions than any coach in history. His basic strategy was always one of confidence and optimism with his athletes.

Another basic point of strategy the coach must follow is constant emphasis on improvement. The athlete who is well-directed concentrates on performing a little better each week and learns to take his satisfaction from approaching his absolute capacity rather than from victory alone.

There's nothing worse than seeing a great athlete who's so obsessed with winning that when defeat comes along, he begins to look for excuses. Boys in this frame of mind often go to pieces completely and can't ever come back.

We can all name hundreds of athletes who, although they won many victories, somehow never ran up to their absolute capacity. Whitfield, Gerhmann, Woodruff, Strand—all great record holders—never quite seemed to run the races we all know they were capable of running.

As a matter of fact, few men ever do. The major problem in coaching and competing is the constant strug-

gle to approach absolute physical capacity. Eliminating fear by careful training, building confidence patiently, and instilling pride in performance by many different methods constitute the real foundation of good strategy.

Tactics and race techniques are, of course, many and varied. In any case, there are four basic factors to consider in planning any race tactic: (1) weather and track conditions, (2) the opposition, (3) race pace, (4) self-discipline.

#### WEATHER AND TRACK CONDITIONS

Bad weather or a poor track works to the distinct disadvantage of the better athlete. While he still may win, his margin cannot be as great.

Loose cinders, wind, cold or rain are great levelers. You immediately know the pace will be slow. And where fast pace isn't possible, the entire complexion of a race may change. Then in all probability, your strategy will be planned on a slower pace than originally agreed upon.

Athletes who normally front-run a race, due to lack of leg speed, are often in real trouble in poor weather. "Kickers," or boys who usually follow the pace setter and then sprint the final 100 yards for victory, are handicapped far less on these days than "front runners" for two reasons: (1) Since the pace will be slow, the "kicker" can conserve more energy for his final burst for the tape. (2) The "front runner" will break wind or shelter the "kicker" during the body of the race.

There are several other considerations of race planning under poor weather conditions, and they are:

- Often on bad days many athletes can't or don't warm up enough. The wise coach will capitalize on this and make certain his own athlete doesn't make this mistake.

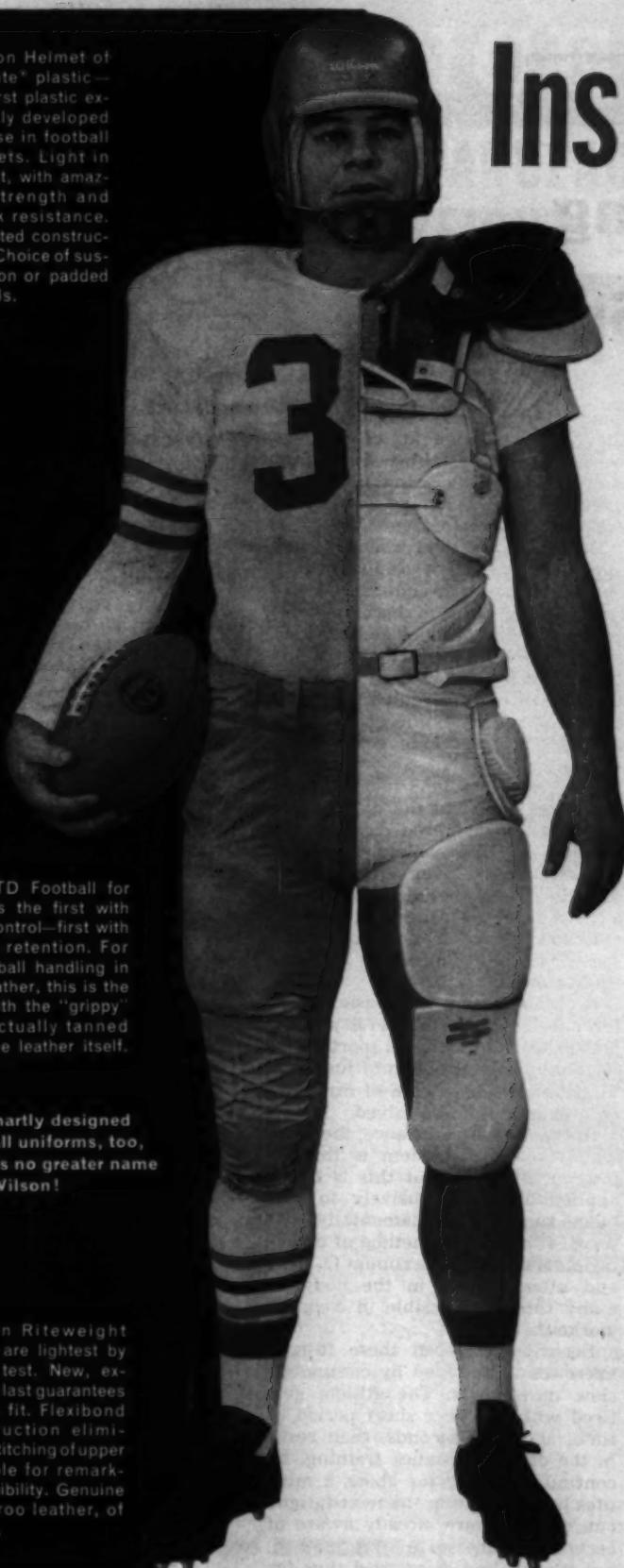
- A certain percentage of boys, due to the discomfort of the track conditions, will take a "what's-the-use" attitude. Their performance will thus be more miserable than even poor conditions warrant. The coach who points this out to his athlete can often turn a disadvantage into an advantage.

- Always be prepared for the worst. Be sure your manager has extra sox, covers long spikes, and anything else that your opponent may not have thought about bringing. The psychological and physical advantage will some day win a race you should have lost.

One important thing we've done for years at Michigan is to work out in all possible weather conditions. Once we move outdoors in April,

(Continued on page 34)

Wilson Helmet of Etholite® plastic—the first plastic expressly developed for use in football helmets. Light in weight, with amazing strength and shock resistance. Patented construction. Choice of suspension or padded models.



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Hugh McElhenney is a member of the Wilson Advisory Staff.

# Inside Story

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By KEN DOHERTY, University of Pennsylvania

# Basic Training for All Sports

THROUGHOUT the sports world, there's growing acceptance of the theory that maximum performance in specific events depends on a broad and solid structure of all-round strength, endurance, and flexibility.

Opponents argue that skill is still the primary concern, that an amateur's time and energy are very limited, and that greatest dividends will come from devoting all efforts to perfection of the endless details of skill. They argue, further, that each activity builds its own strength, endurance, and flexibility which, in the long run, will prove adequate for its own needs.

In certain sports, especially the team games, this argument can be strongly supported. Some of our most successful teams are making little use of barbells, interval training, basic flexibility exercises, and the like. But men are becoming increasingly aware that such basic training can be kept on a supplementary basis and needn't take time away from training on skill.

Training at home at night or in the morning doesn't detract in any way from skill training, nor does it necessarily require the expensive and unwieldy equipment commonly associated with strength training. Further, research in related sciences is making it clear that the "hard core of fitness" in strength and endurance cannot be fully gained through the specific movements of any one sport, nor in the few weeks that have been traditionally allowed for it.

A man continues to gain in strength, unsteadily but surely, for months and years after he first takes up strength training. Similarly, coaches of endurance events agree that it takes from five to as many as ten years to reach maximums in circulo-respiratory endurance.

Further, there's general agreement that the length of time that strength and endurance can be

maintained is highly correlated with the length of time in which they were created. If established in a few short weeks, they won't be firmly fixed and will soon be lost when training slows or ceases.

But if established soundly and over a long period of gradual development in strength-endurance-flexibility, they tend to become "anchored" in the muscles and tendons and in the cardio-vascular system; they resist injury, and can be maintained at a high level of sports efficiency with a minimum of time and energy during a long competitive season.

Moreover, they tend to carry over from one season to the next. After the first two or three days of the new season, the athlete may feel he's starting all over again but he soon discovers a residual power and a new level of fitness. A certain reservoir of power and endurance seems to be maintained just as there's one of skill.

It seems certain that basic fitness for specific performance is now a part of world practice in sports. Unfortunately the problem of just how to attain this hard core of fitness is only beginning to be solved.

In the area of endurance, the most widely accepted system is that of interval training. But this is being applied almost exclusively to distance running. Fundamentally, interval training is a method of creating a condition of maximum O<sub>2</sub> debt and allied effects in the body as many times as possible in a single workout.

Recovery between these fatigue exercises is hastened by continuous slow movements. The athlete gets tired within a very short period of time, about 60 seconds, then rests, in the case of distance training, by continuing to jog for about 3 minutes before starting the next fatigue run. Trainers are already aware of certain weaknesses in this method, but it's the best discovered thus far

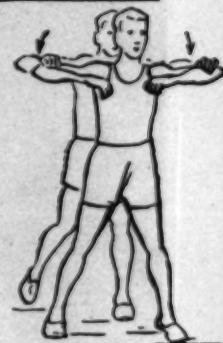
## STRENGTH WITHOUT ENDURANCE TENSION EXERCISES

Press elbows hard against the wall



Press palms together hard

## STRENGTH WITHOUT ENDURANCE DUAL RESISTANCE EXERCISES

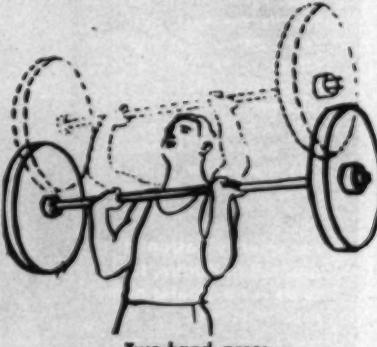


Upper arm lift



Leg flexion

## STRENGTH WITH SOME ENDURANCE WEIGHT TRAINING EXERCISES



Two-hand press



Full squat

# ANNOUNCEMENT

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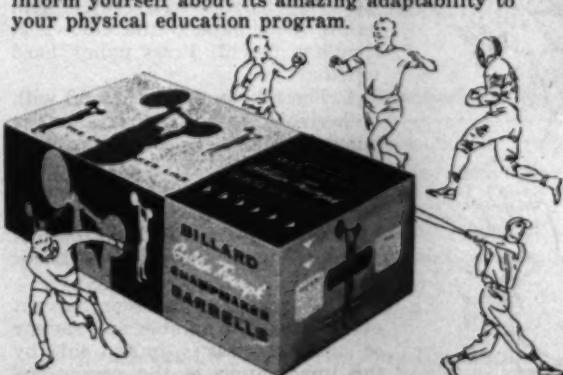
### HOW THE CLINIC WORKS:

Mr. Randall will introduce your students to weight lifting and its applications to development for other specific sports. He'll demonstrate Olympic lifts and body-building exercises, show the basic equipment, provide barbells and dumbbells from local sporting goods dealer so that students may join in the demonstration and conduct a question and answer period.

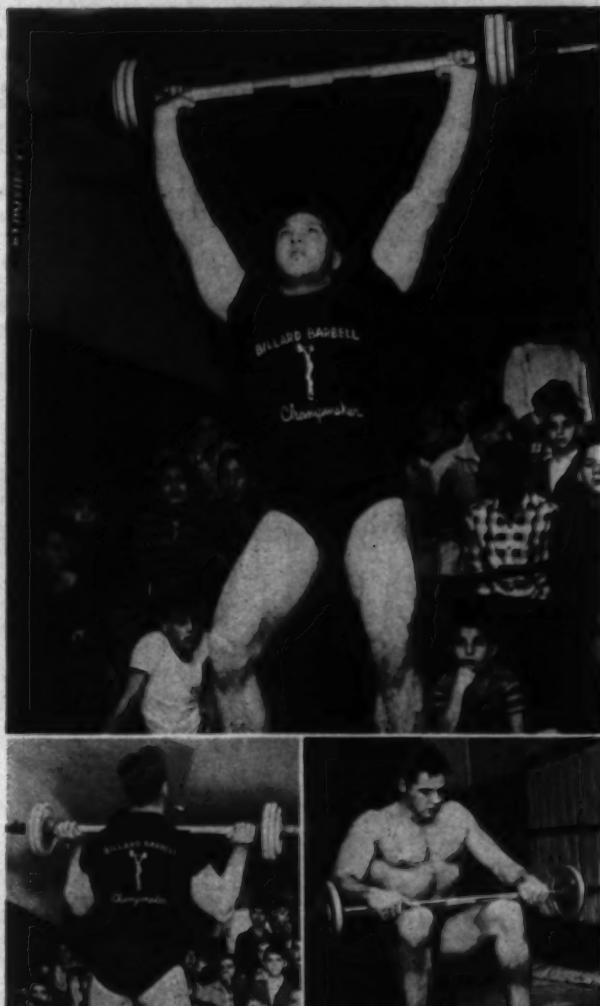
### WHAT YOU SHOULD DO TO PARTICIPATE:

Send a postcard or the coupon below. Mr. Randall will communicate with you promptly to make arrangements.

This is a valuable opportunity to entertain your classes, introduce them to a healthful new sport, and inform yourself about its amazing adaptability to your physical education program.



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and would seem to have wide application to all sports requiring this form of endurance.

In passing, it should be noted that research in various countries stimulated early efforts in interval training and is continuing to discover new and more precise ways of utilizing it as well as of testing its effects within the body. If and when some relatively simple Index of endurance fitness is available, not only will performance be improved but training will be made much more precise for each individual and possible dangers to health removed.

Training in basic strength has undergone even greater expansion in most sports throughout the world. But in this instance, science has been the prime mover and guide. In 1897, Professor B. Morpurgo of the Pathological Institute of the University of Siena, published research not only on methods of increasing strength but also of the more precise mechanisms by which this increased strength occurs in the muscles.<sup>1</sup>

Over 30 years ago, Dr. C. H. Mc-

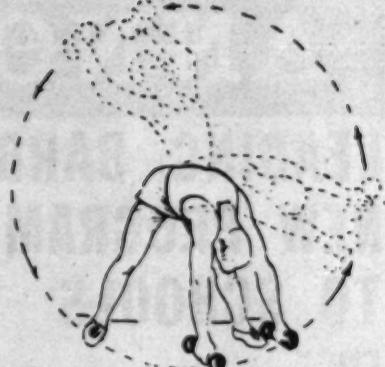
Cloy of Iowa clearly demonstrated that "strength is the one most important item in almost all motor performances." Today, a substantial volume would be necessary to list the research studies on the various aspects of strength that have been made throughout the world.

For obvious reasons, interest in strength in sports is concerned exclusively with strength in action—called dynamic or isotonic strength. Almost all weight training consists of movement against heavy resistance, usually in the form of barbells, wall weights, sand bags, weighted vests, and the like.

Such dynamic strength training is being used for every conceivable purpose by wrestlers, basketball players, swimmers, sprinters, golf players, even distance runners. Recently, Dr. Ernst Jokl<sup>2</sup> gave a very learned paper on the value of weights carried in the hands of distance runners. Higher levels of O<sub>2</sub> debt were reached thereby than were possible under normal conditions.

But there's another type of

#### FOR FLEXIBILITY



*Trunk Rotation*

strength and strength training: strength separated from endurance, even from all movement, which is variously called static, isometric, or tension strength. To state the case quickly, Arthur H. Steinhaus, professor of physiology at George Williams College, writes:<sup>3</sup>

"A muscle that is just able to lift 100 pounds will be stimulated to grow when it is exerted to lift about 40 or 50 pounds or about half of its maximum strength. Recently it was discovered that only one such contraction held momentarily only once a day makes muscle strength grow just as fast as it possibly can. Repeating the exercise several times a day has no further effect."

That's a most amazing statement, almost incredible. Later in the booklet, *How to Keep Fit and Like It*, Steinhaus describes a set of 13 tension exercises which require no expensive barbells; in fact, no equipment at all, and yet, "which build strength as quickly as it can be built."

Several of them include:

1. *The elbow push*: Stand with back to the wall—elbows at shoulder height and touching wall—hands at collarbone level with palms down. Press elbows hard against the wall.
2. *The hand push*: Stand with palms touching and the elbows at shoulder height. Press palms hard together.

4. *The muscle maker*: Stand with both elbows bent and the hands relaxed. Contract the biceps as hard as you can.

9. *The curver*: Lie face down on the floor with hands on hips. Raise the head and shoulders and the feet from the floor (keep the knees straight).

A little thought will soon make it evident that the number and variety of such exercises is limited only by the imagination of the person involved. By contrast the variety of barbell and other weight training

#### FOR STRENGTH AND ENDURANCE



*Squat and Leap*



*Bicycle (sandbags)*

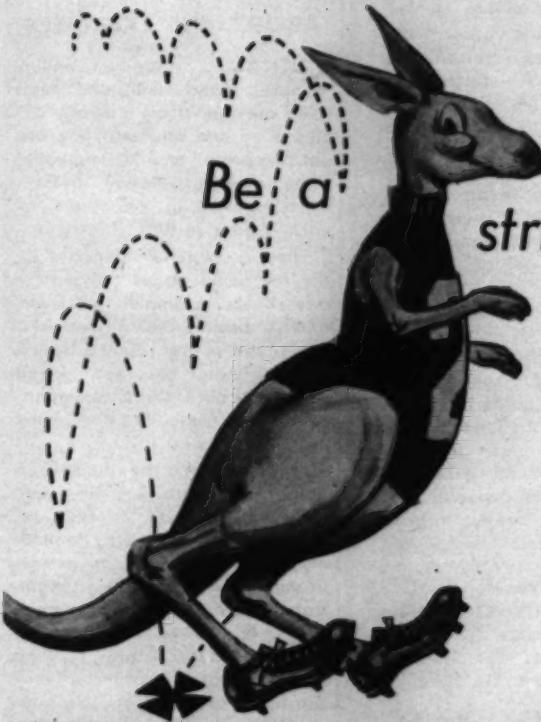
#### FOR ENDURANCE WITH SOME STRENGTH

*Run upstairs*



*Weight drag*

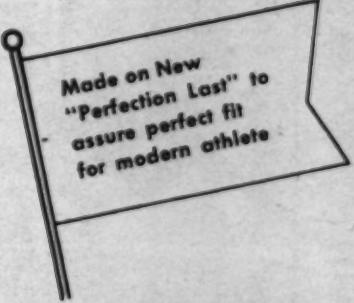




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exercises is paltry indeed.

But frankly, the writer entertained certain doubts about Dr. Steinhaus' somewhat unqualified statement, "one such contraction held momentarily only once a day makes muscle strength grow just as fast as it possibly can." Only after studying the research material<sup>4, 5</sup> which Steinhaus sent in answer to a letter of inquiry, did it seem clear that there's a basic and sound truth in these statements which, within their limitations, is certain to modify our strength training programs of the future.

These principles are based primarily upon the experiments of a group of researchers under Dr. Erich A. Muller<sup>6</sup> of the Max Planck Institut fur Arbeitsphysiologie in Dortmund, Germany. For more than a decade, they tried to discover the fastest way to increase muscle strength. In one series, 71 separate experiments were performed on nine male subjects over a period of 18 months. One article titled "The Regulation of Muscular Strength" by Dr. Muller<sup>6</sup> lists 26 research references to support its conclusions.

Obviously then, the seemingly incredible statement of Dr. Steinhaus is no mere statement of opinion. On the contrary, it's carefully documented research which, within its admitted limitations, we should recognize and utilize to our best advantage.

It must be repeated that tension exercises increase the number of usable muscle fibers but do not affect the blood capillaries; they increase strength but not endurance. One research series found that although strength was increased from 64% to 97% of maximum, endurance wasn't affected at all. There was no increase in blood supply.

Since sports always involve dynamic activity, never static, it's obvious that the static strength created by tension exercises must be supplemented by dynamic exercise of some kind which builds endurance within the muscle group concerned. It's further obvious that skill isn't related to such static strength and must be acquired through its own means.

At the same time, such tension exercises seem to have certain special values; for example, their need for a minimum of equipment, their almost infinite variety of action, their non-fatiguing nature, the minimum of time they require, and the fact that they can be done almost anywhere, anytime. The thought that strength, even though of a specific kind, can be increased while standing in a doorway, while sitting

## ABOUT THE EXERCISES

SUCH terms as strength, endurance, speed, skill, and flexibility are not at all mutually exclusive of one another—they are not separate entities. Actually, every strength exercise involves some measure of the others, as each is done in turn.

The five exercise categories on the foregoing pages are merely offered as examples of interrelated basic training exercises. There are many others: speed with strength exercises, speed with endurance exercises, endurance with flexibility, and many more.

It should also be recognized that there's more than one path to each of these concepts of strength, endurance, etc., depending upon the particular activity in mind. For instance, a strength-training program doesn't require a specific kind of implement. As long as muscles are working against heavy resistances, they are being strengthened. Such resistances are present in heavy barbell lifting, in two-man resistance exercises, or in any maintained contraction against a fixed object or even against opposing muscle groups.

The effectiveness of any strength exercise depends upon the degree to which these other concepts (speed, endurance, etc.) are involved in the activity for which the subject is training as well as the degree to which these concepts can be satisfied in other exercises or in the activity itself.

(All the drawings are extracted from "Ninety-Nine Exercises for Strengthening Flexibility in All Sports," Track and Field Movies. See the advertisement on page 67.)

in a chair watching television, even while lying in bed is certainly intriguing though somewhat disrupting to current weight-lifting methods as well as to manufacturers of barbells.

One of the more interesting of the many secondary phases of this extensive body of research has to do with the extent to which strength can be maintained. Muller<sup>6</sup> writes:

"Strength that is increased by daily training is lost in about the same time that was required to build it up. A short training period induces only a loosely anchored ad-

(Continued on page 63)



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## PART II

# Pole Vaulting

## Techniques

• BRAGG • GUTOWSKI • COOPER • MATTOS • LAZ  
• GRAHAM • MORRIS • WELBURNE • POUCHER • LEVACK

ONE of the reasons for the improved level of performance in pole vaulting is that our vaulters have become increasingly articulate about their event and much more conscious of the necessity for continuous study of both their own form and that of their competitors.

To ascertain their thoughts on the essential techniques, the author undertook an extensive questionnaire survey of ten of the country's outstanding vaulters, namely: Don Bragg, Don Cooper, Jerry Welbourne, George Mattos, Bob Gutowski, Don Laz, Earle Poucher, Ron Morris, Walt Levack, and Jim Graham.

Their answers to the first 10 questions appeared last month. Following are their answers to the last five questions plus a recapitulation and a treatise on body conditioning.

### 11. What is your general approach to the push-up? Do you make a conscious pushing effort?

Bragg: I feel there's no such thing as a push-off and I never feel one on top of my best vaults, even if I do straighten my arms. A strong pull does away with a push.

Cooper: A continuation of the pull-up, the same as a muscle-up on a bar. Yes, at times I make a conscious pushing effort.

Welbourne: The push-up is a continuation of the rock-back and pull and turn. While I'm supposed to have a good push-off, I'm generally not aware of it. I can feel an extension of the right arm with the proper take-off swing, rock back and pull and turn, but the push-off seems ef-

fortless. The main thing to remember is not to pause before pushing. It should be blended with the pull and turn.

Mattos: I try not to have to push. Only on a bad vault do I think of pushing to save the jump. On a good vault, the pull and turn are one explosion, the pull getting the most thought. The action of lift must continue until almost in the pit.

Laz: Absolutely no conscious push. Pull, turn, push is the action; all one continuous motion after releasing the pole, the body should continue to rise.

Poucher: I make a fairly conscious effort to push-off. There are jumps I don't have to push; I've felt so smooth that I didn't need this. I think that consciously working on a violent push is good because there'll be jumps that aren't perfectly coordinated. I prefer pushing off with one hand. I don't recommend throwing the hands back overhead; rather a lifting of the elbows and throwing the head back should be cultivated. Elbows should come up first. The reverse arch is helpful after the hips have cleared the bar to help clear the chest.

Gutowski: I swing my legs up. After I've turned, my right arm is cocked back and I push from here. I'll generally be aware of pushing, but only on relatively bad vaults will I feel any strain in pushing.

Morris: My push is a continuation of my pull. I try to pull-push and let go in one quick motion. Therefore, my push isn't of a type that's executed separately.

Levack: When my swing and pull are properly executed, I have no time to push. However, I can sometimes save an otherwise poor vault by pulling and pushing in the same movement.

### 12. What is your general opinion concerning the jack-knife arch and flyaway clearance style?

Bragg: I feel that the jack-knife makes it very difficult to clear the upper body. I prefer the arch style with the turning of the body to the left and lifting of the chest and arms as a continuation of the turn. This clearance was developed by Mr. Tupenny to prevent me from turning the right arm into the bar.

Welbourne: My action would be described as arch-flyaway. My opinion is that the jack-knife ruins a lot of jumps and vaulters. The flyaway works especially well for the tall, swinging type of jumper, but basically I don't like it because it's hard to clear the chest and requires greater accuracy in the placement of the standards. I like the arch-flyaway because you clear one part of the body at the time. In this style, you clear the legs and then as you're starting down you pull up the arms. You have something to work against. I think it's easier to save jumps with this style.

Cooper: No comment.

Mattos: I try for a definite arch form. On my better vaults, I can tell I've arched and flown away upward in this position. I sometimes think of sucking in my stomach to aid in the arch.

Laz: Arch-flyaway is my clearance style. Powerful flinging of the arms upward overhead after releasing the pole; this is to lift the upper body from bar while at the same time making a hard turn to the left. Once turn is begun, it should be instantaneous. Slow turns leave arms in position to displace bar.

Poucher: The jack-knife isn't practical today. Arch-flyaway will be the form in days to come. It involves a definite flattening out of the body at the height of the vault, but since the hips are held high (or should be), this gives more possibilities than the straight flyaway. The dropping of the legs after they're over the bar is important in providing the balance to clear the chest as it traverses its arc over the bar.

Morris: I feel that all types of clearances, with the exception of the jack-knife, can be used with good results by certain vaulters. I feel that the arch or arch-flyaway, however, is the best of the group. I try to accomplish my vault with the arch-flyaway finish because I feel, with my particular type of jumping, this is the best.

Levack: The jack-knife is definitely poor and outdated. The flyaway has been ineffective for me. The arch-flyaway is the most effective for vaulters of my size. I am very small. I try to get off the pole as soon as

By RICHARD V. GANSLEN, University of Arkansas



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possible in the arched position.

Gutowski: My criticism of the jack-knife style is that it tends to drop you on the cross-bar. The arch style, in my opinion, throws your chest into the bar upon release. I believe the fly-away dissipates too much of your upward momentum and tends to drift you away from the pole. I use, I think, a modified jack-knife!

### 13. List in order of importance the three major faults that many potentially fine vaulters seem to display.

Bragg: (1) Poor pole shift or plant; (2) poor body-pole relationship; (3) dropping the chest into the bar.

Cooper: (1) Too late on the pole plant; (2) pull-up delayed too long; (3) failure to continue the push-off after the pull-up because they swing away from their pole and can't use it.

Welbourne: (1) Lack of a good pole plant and continuous drive into the box. Can't get the pole out in front and up and therefore a failure to drive onto it; (2) lack of a good turn and thus lack of push. Can't turn soon enough or completely enough. With a great many vaulters, this causes a pause and thus no push; (3) lack of good clearance form; how to clear the cross-bar without knocking it off; could make it but don't realize where they are and can't save the vault. Some duck the head (McKnight).

Mattox: (1) Pole plant is late and jerky; (2) failure to roll back—sometimes the feet aren't up at all; (3) pull and push are not one action.

Gutowski: (1) I believe they have a tendency to lose control on top; (2) their pole plant isn't developed; (3) when the bar gets to extreme heights, they talk themselves out of making it.

Laz: (1) Poor pole plant; (2) a tendency to turn too soon in vault; failure to stay on the back long enough; (3) poor position over the bar.

Poucher: (1) They lack ability to get their body close to the pole during the crucial position of the swing and pull; the legs hang out and the pole is in bad position; (2) they turn over too quickly—not taking advantage of the natural-rise of the pole and their momentum; (3) lack of balance at the take-off, caused by poor run, no relaxation and no gather. Most important fault is that vaulters do not have the continuing desire to be perfect. No great vaulter will ever be satisfied with his form.

Morris: (1) The lack of swing or a poor swing, often accompanied by a premature pull; (2) a poor pole plant—either too far back or too close. It's usually too close and too far to the right of the runway; (3) weak pull-push action on top.

Levack: (1) Too much speed on the runway; (2) planting the pole too late; (3) errors of alignment.

### 14. What critical factor seems to determine the success of vaults at or near 15 feet compared with say 13½ feet?

Bragg: I think mental outlook plays a big part, and to me the pre-pull

position is the most important aspect. It would also be difficult to omit good timing.

Cooper: Speed plus good pole plant and shift are more critical here.

Welbourne: The critical factor is WORK. When I made 15 feet, I was conscious of having worked all the way—swing, rock-back, pull, turn, push, and clearance. You have to be able to keep the pressure on all the way. At lower heights, you can run easier, give a good pull and coast over.

Mattox: It's the smoothness in combining the push and pull-push (as I call it), and the smoothness in converting the speed down the runway to an upward motion. I hate to think what the record might be if the vaulters who hold high had the form of the vaulters who hold much lower.

Gutowski: I believe the most critical factor in the success of the vault at 15 feet is confidence. Other important factors are speed of run, push, and timing, i.e., knowing where you are in relation to the cross-bar just before releasing the pole.

**T**HIS concludes a two-part series on the mechanics of pole vaulting, as amassed by Dr. Richard V. Ganslen, the world's No. 1 vaulting authority and teacher. For details on his superb technical book, "Mechanics of the Pole Vault," refer to the advertisement on page 68.

Laz: It's easier to jump 15 feet than 13 feet. Here all of the coordination must be near-perfect, and when this happens the vault is easy. "Delicacy of timing" is 95% of successful 15' jumps. Speed and strength are only instruments to carry out timing.

Poucher: The critical factor seems to be, more than anything else, suppressing the vaulter's natural anxiety to pull sooner and turn over quicker. I'd say that the nearest thing to perfection is a 15-foot jump. For most vaulters, it requires a maximum effort with a minimum of tension. No wonder we have so few of them! The most important factor is a high hand-hold. It's far easier to attain consistency when a vaulter's strength lies in his ability to hold the pole high. A vaulter cannot jump 14'6" or better and not use his pole to a great extent.

By that I mean utilizing the bend and snap in the pole and also riding the pole close to the body. At lower heights, such as 13'-13'6", it's common to see vaulters clear without any bend of the pole or coordination of the vaulter and pole.

Morris: The answer to the 15' jump is a combination of all factors. I think timing is the most important with a high hand-hold. If an individual is holding low, he's limited in his push to a certain extent.

Levack: The difference between my good vaults and my bad ones is whether or not I get on to the pole smoothly. At practice, I jump as high as possible and as long as possible on as many days as possible. (Best at practice, 14'9".)

### 15. What about the future of pole vaulting? What would you consider the ultimate record and what factor will probably delimit the record?

Bragg: Our records are getting higher all the time and it's difficult to set a limit, but my coach, Jim Tupenny, has described the ideal vaulter as one with: the height of Jim Graham, 6'5"; the speed of Earle Poucher or Boo Morcom; the strength of Don Bragg; the desire of Jerry Welbourne and Don Laz; the experience of Bob Richards; the form of Dutch Warmerdam; and coached by Dick Ganslen. With the ideal set-up, better high-school coaching and improved poles, I feel it will be possible to vault 16'8". I feel that the height of the hand-grip and the fact that a man can only vault about 3' to 3'3" above his hands are the important factors. If a man could hold 14' and had an effective grip of 13'5", he could go 16'8".

Cooper: I definitely believe that the limit is somewhere in the neighborhood of 16½-17 feet. It will be a boy who is at least 6'4" tall, weighs about 175 lbs., can run 100 yards in 9.6, and can hold the pole about 14'-14'4" from the end. He will need tremendous strength in his arms.

Welbourne: Pole vaulting is a fine art that takes many years to learn. Improvements have come because of three things: (1) better physical specimens; (2) better coaching and exposition of the basic principles; and (3) setting of higher standards of performance. The future will be much like the present; 13'6"-14' will still be a good college jump but like all heights up to 15', it will become more commonplace. You won't see any great improvements; humans are still humans and make mistakes, fail to train, get married, quit vaulting, etc. The ultimate world's record will be around 16 feet. I've seen Bragg come close to 15'9" and I know that if I can do over 15 feet with my speed and height, someone else can do better. The pole will be the limiting factor. The ability to hold higher, run and plant the pole with a very high grip.

Mattox: Jerry Welbourne pushed 3'2" in an indoor meet and made 14'9" holding a net of 11' from the ground. Fred Barnes has experimented with a high hand-hold around 14'2" on the pole. Someday a man will hold 14 feet or a net of 13'4" and push 3"—giving a height of about 16'4". This man will be tall like Jim Graham, strong as Bragg, fast as Bobby Smith, smooth as Warmerdam, and as "iron manish" as Bob Richards. No man without these qualities will not, or should I say can not, do it. I think many short vaulters have most of the qual-

(Continued on page 49)

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## Exercise Program for Pitchers

By C. H. McCLOY, Research Professor Emeritus, U. of Iowa

In a previous article in *Scholastic Coach*,<sup>1</sup> the author explained several methods of toughening the ligaments and muscles of the shoulder joint through use of the horizontal ladder. This has proved especially effective in preventing shoulder separations in connection with falls in wrestling, tackling shock in football, and activities of that nature.

At this time, we'd like to present some methods of toughening the shoulders and elbows for baseball pitching. The same principles apply, namely that of *repeated stress on the ligaments and a strengthening of the muscles used in the activity*.

Before proceeding with the various exercises, however, the writer would like to relate a personal experience which proved very fruitful in relation to throwing motion.

From 1921 to 1926, the writer was doing a great deal of pitching and often wasn't adequately prepared. Frequently, he'd receive a telephone call asking whether he'd be available to pitch a game the coming week-end. All too often, he had to pitch without more than a couple of days preparation.

Even though he was relatively well-prepared so far as general musculature was concerned—thanks to regular participation on the horizontal and parallel bars as well as the flying rings—very frequently this pitching chore would produce an extremely sore shoulder and elbow that might be troublesome for one or two months.

In 1922, the writer was teaching gym classes in softball. At that time, the ball was 17 inches in circumference and weighed about 9.5 oz. As part of his teaching chores, the writer had to throw this rather large ball overhand, just as he would a baseball, about 200 times a day, three days a week. He threw easily at first, and then very much harder.

As a result, he developed the pitching muscles of the arm—corresponding to the muscles used in

the javelin throw—to such an extent as to increase his speed by approximately 10%. What's more, his "sore arm" trouble disappeared!

He later tried this out with other players and found it constituted an almost certain preventive of sore shoulders and elbows.

From his personal experience and subsequent research in the field, the writer developed a sound and practical exercise program for pitchers, consisting of the following:

### THROWING OF HEAVY BALLS

1. Throw a heavy ball such as a softball. The largest ones available are usually about 16" in circumference and about 8 oz. in weight. At first have the athlete throw it relatively easily, and then have him throw it harder and harder (from week to week) until he can throw it as hard as he can without any arm soreness developing.

2. When the athlete is able to throw the softball as indicated, it's suggested that he graduate to a light medicine ball about the size of a basketball.

You can make such a ball from a discarded basketball, stuffing it with worn-out towels and sewing on a strap for a handle. Again, this should be thrown rather easily at first and then harder and harder until the individual can throw it 50 to 75 times at full force.

3. If desired, a still heavier ball may be used, such as a heavy medicine ball.

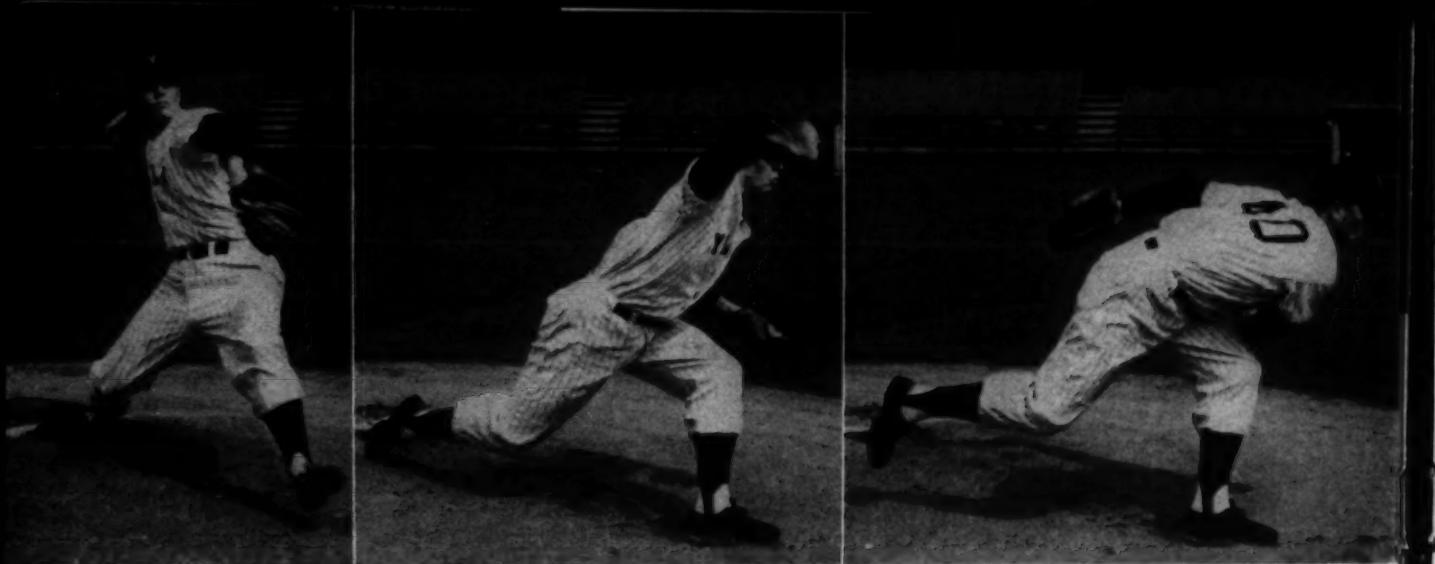
### USE OF LONG RUBBER CABLES

This type of cable is called a "shock cord." They may be purchased up to about one-third of an inch in diameter, in one length of about 18 feet or in shorter lengths (used as an exerciser) up to about 22 to 23 inches in length, and fastened together. A handle is usually provided at one end.

The athlete stands with his arm at full length, as though about to throw the baseball, and with the tension on the cord as great as seems

(Continued on page 65)

<sup>1</sup> McCloy, C. H.: "Kinesphylaxis in the Training Program," *Scholastic Coach*, October 1937, p. 48.



The straight-line principle of delivery is beautifully exemplified in this sequence. Note the excellent line

formed by the toe, leg, arms, shoulders, and head in the first picture and the full sweep of the pitching arm.

## Out-think the Hitter!

By MAL MALLETT

*Ex-Brooklyn Dodgers and Montreal Royals Pitcher*

**B**ILL VOISELLE, the former Giants pitcher, recalls that slugger Johnny Mize would often reveal some phase of his batting strategy to teammates.

"Well, boys," the big first baseman would say as he grabbed a bat, "I think I'll go up there and look for a slow curve low and outside on the first pitch."

"If he got that pitch," says Voiselle, "it was goodbye ball. If he didn't get it, why there was no great harm done. He still had two strikes coming."

Mize wasn't the only hitter who prepared himself beforehand for a certain pitch. Many hitters still do this—as a general practice or just on occasion.

The object lesson for pitchers is that unless you have overpowering stuff—and few have—you can help yourself by developing some counter-intelligence measures. Remember, when a good hitter gets the pitch he expects, especially in the predicted subdivision of the strike zone, the pitcher is about to be handed a cake of soap.

Few batsmen will admit they're guess hitters, but the percentage runs high, particularly in certain situations. The best summation I've ever heard was made by Ralph

Houk, the new Yankee coach.

"I was not exactly a guess hitter," grinned Houk. "But I must say I got mighty suspicious up there at times!"

Getting back to Mize, suppose the pitcher had what he thought was a sound plan. Let's say he was going to start off with that slow curve, come back with a fast curve, and then go high and tight with the fast ball. There's nothing wrong with that sequence except for the fatal fact Mize was doing some thinking, too.

It follows then that a pitcher, if he's to increase the effectiveness of his strategy, must think not as a pitcher—but as a hitter! Standing 60' 6" from the plate, he should try to put himself in the hitter's shoes and ask, "What is that big lug thinking about?"

This may seem an impossible task—and it is difficult. But, aside from the sheer hunches some hitters play, there are some predominant habits to keep in mind. Some of these will seem contradictory and that is because—thankfully—there are no set rules in this engrossing battle between pitcher and hitter.

The first habit to remember is that most hitters will guess fast ball after they have two strikes. They do this because they can hit the

curve or change-up while guessing fast ball, but not vice versa.

We've all seen the choppy swing that results when the batter is looking for the curve and gets what Roy Campanella calls the "express." Those who strike out frequently are more apt to guess curve only on the first pitch, leaving two tries guessing fast ball in case they miss.

Other hitters, and this doesn't include many of the better ones, like to jump on the first pitch. The advantage is that in making up their minds before the ball is thrown, they can get a trifle more rhythm and power.

The disadvantage is that they're likely to chase a bad pitch—and once the word gets around that should be all they get. When facing a first-pitch hitter, the general rule is to place the ball just out of the strike zone—not far enough so the batter will check his swing, however. Make him hit your pitch.

There's a switch in this category, as explained by Gene Woodling, the Cleveland outfielder who once played for the Yankees.

Woodling recalls that Yankee coach Bill Dickey once told him he was taking the first pitch too often. "That's what I wanted the pitchers to think," Woodling explained. "Losing that first strike doesn't bother me. And in the clutch the pitcher often thinks he has a good chance of getting an easy first strike on me. If he lays the ball in there, I jump on it. Check the records and I think you'll find I drive in a lot of runs on the first pitch."

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that can decoy a pitcher. Suppose a hitter is looking for the fast ball on the first pitch and gets a good curve on the corner. Knowing it will be a strike, he can swing awkwardly. This apparently would indicate he's a sucker for breaking stuff. But you'd better know your hitter before making any such assumption. The next curve may go rocketing into the bleachers.

Rogers Hornsby, perhaps the greatest right-handed hitter of all time, taught a batting rule in this regard. He would tell his players that with less than two strikes they should never try to get a piece of a pitch that fools them. That's the way you pop up or ground out. He told them either to take the pitch or intentionally miss it and then try again on the next ball in the strike zone.

Some hitters have remarkable memories, which is another reason why pitchers shouldn't fall into habits. These hitters are constantly trying to deduce what a given pitcher will rely on in the clutch. Or they'll look for a set pattern that the pitcher follows against them.

Willard Nixon of the Boston Red Sox testifies to the photographic memory of Ted Williams. "When I first came up with the Red Sox," says Nixon, "I pitched to Williams one time in batting practice. At the time I threw a sinking fast ball. He didn't see me again until more than a year later when I got another trial. By that time I was throwing my fast ball with a backspin."

"Ted took one look and told me, 'you'd better go back to your old style. There are too many hitters in this league who'll get fat on that new fast ball of yours.'"

In certain situations, a pitcher can be successful by going against the indicated rule. Charles (Red) Barrett, the former St. Louis Cardinal pitcher, did this when he was finishing his career with Nashville of the Southern Association.

Nashville's park—Sulphur Dell—has a right field fence which looms up just behind first base. Left-handed hitters call Nashville paradise and a shutout is an accomplishment indeed, since any pulled fly ball drifts over the screen. Yet there was the crafty Barrett running up a skein of scoreless innings. How did he do it?

"Simple," said Red. "Almost everybody was pitching the left-handers outside so that the hitters practically had one foot under the plate trying to pull the ball. I pitched them all inside and hit them on the fists."

The pitcher's greatest sources of insight are his own teammates.

## PITCHING GUIDES

Here, Mr. Pitcher, are 10 general guides to keep in mind (remembering that no pitching rule is infallible):

1. The guess hitter is that fellow who suddenly looks bad on a pitch which ordinarily doesn't bother him.

2. It takes a while to spot the first-ball hitter, but once you do never give him a good first pitch.

3. The guess hitter is playing percentages and the more pitches you can get over the plate the lower his percentage will be.

4. If you pitch a hitter by an unvarying formula, he'll soon recognize the pattern and set himself for it.

5. The hitter who jumps wildly away from any close pitch is worried about being hit. A pitch which breaks away from him should be effective.

6. A hitter who rocks back on his heels when taking a pitch will probably have trouble with outside pitches.

7. The hitter who chases one pitch outside the strike zone is likely to chase a second.

8. The right-handed batter who's ineffective against a right-hander's curve often gets fat on a left-hander's curve (and vice versa).

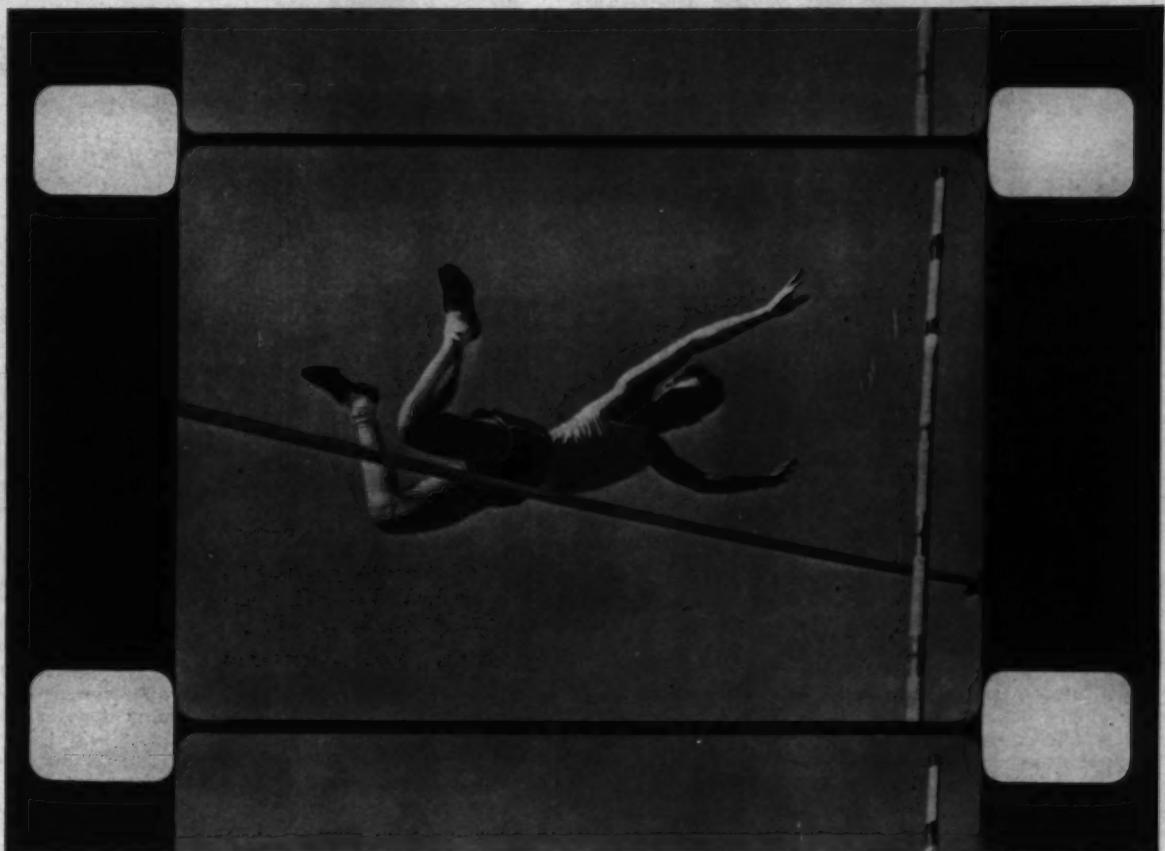
9. The lunge hitter (over-strider) will have trouble with a curve or change-up because it's difficult to hit these pitches when the weight is on the front foot.

10. If a hitter looks bad on a pitch (and isn't guessing), that pitch will stick in his mind the rest of the game; therefore, your other pitches might increase in effectiveness.

Their remarks, as they return to the dugout, are guides which can make you think like a hitter—even if your average is a lustrous .043. Here are some of the things you will hear:

"He's sneaky fast. The ball is on you before you know it . . . He keeps running the ball away from me . . . I can't pick up the ball; it comes right out of his uniform . . . He gives you a lot of motion and no speed . . . Take his curve; he can't get it over . . . He keeps changing speeds on me . . . His curve's just a spinner; it won't fool you . . . Look for the breaking stuff; he's not fast enough to throw it by you . . . Look for the knuckler if he gets two strikes on

(Concluded on page 66)



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Better Things for Better Living...through Chemistry

By O. H. VOGEL, Baseball Coach, University of Iowa

# Preparation for Game Day

**How to determine the strengths and weaknesses of the opposing team prior to and during pre-game practice, and how to work out the squad just before the game.**

THOUGH few high school and college baseball teams are able to scout future opponents, plans can and should be made to amass as much information as possible on all opposing teams.

Possible sources of information include other coaches, sportswriters, newspaper reports on the opponents' games, the scorebook of the previous year's games, and discussions with team members who've played with or against certain opponents.

The coach himself may know what type of game the opposing coach likes to play: If he goes for the big inning, tries to pick up a run when he can, or plays a defensive game.

If no information is available by game day, some help may be gleaned from observing the opposing team's batting and fielding practice. (Even though previous plans have been formulated, this final check should be made.)

Here are the strengths and weaknesses to look for:

1. What are their hitting abilities—who are the strong hitters, the weak hitters, pull or late hitters?

2. Are they a running team who play the hit-and-run, squeeze, steal, and bunt?

3. How well do the individual players field and throw?

4. Do they have any general or specific offensive or defensive maneuvers that may have a bearing on the game? If so, these should be analyzed and defensed or offensed against.

On the day of the game, the coach will usually know whether a left-hander or right-hander will be working against his team. If available, that type of pitcher should be faced in batting practice—even if

it's necessary to press into service some player who isn't a pitcher.

If the opposing pitcher is known as a fast-ball or curve-ball, that also should be duplicated as much as possible. It will be decidedly advantageous to practice against such type of pitching for several days prior to the game.

Some pitchers, to conserve energy, like to take it easy the day before the game. In this case, they should take a reasonably good workout two days before. This should include some batting-practice pitching to sharpen control.

For pitchers who like to "loosen up" the day before a game, the good workout should be taken three days before, easing up on the second day. Fit the workouts to the individual's choice.

A practice session of an hour to an hour and fifteen minutes on the day preceding the game is ample.

Batting practice should be taken in regular hitting order, with any utility player who may replace a regular following that player in the order. This tends to acquaint each batter with the abilities of those directly ahead and behind him.

The base coaches should be in their boxes, and for review purposes should flash the signals before every pitch. With the batting order set, now also is the time to review offensive situations.

For example, if the batter is a good bunter and you want to practice the squeeze play, put one of the preceding two or three batters on third base and have the batter squeeze him home on his last hitting attempt—with the batter running to first after the bunt.

Each player should take from three to five swings. If five swings,

ordinarily have him hit two straight-away, one hit-and-run, one sacrifice, and one squeeze. If stressing bunting or the hit-and-run, have the majority of swings along those lines.

Whenever the player is a good hit-and-run man, have a preceding runner on first and play the hit-and-run on the last swing.

If a large squad is available, a defensive team can be placed on the field so that offensive assignments can be executed under game conditions.

With a small squad, it may be necessary to have only three or four players operate offensively, the others taking defensive positions. In this case, as soon as a batter and runner complete their assignments, have them take defensive positions while defensive men fill in offensively in regular order.

All players now have an opportunity to review their offensive plays and at the same time get several rounds of batting practice in a short period of time.

Fifteen to 20 minutes of fielding practice follow, with the pitcher or pitchers to be used the next day not participating. They should be sent to the showers.

After thoroughly loosening up, the infielders and outfielders take their defensive positions. Fungo hitters should be placed behind third base and first base on the outfield side to hit to the outfielders.

Some coaches station their outfield fungo hitters between home plate and third base and behind home plate and first base. This can be dangerous. Unless they're very experienced, there'll always be the peril of hitting an infielder.

A snappy fielding practice of 10 to 15 minutes will suffice, with a few moments at the end being devoted to hitting fly balls to the infielders and catcher.

Finally have the outfielders take their regular positions. Then call an imaginary play situation, with all

(Concluded on page 42)

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## Middle Distance Strategy

(Continued from page 14)

we never return to the shelter of our Field House on bad days. For us to go into the warm Field House would be simulating a condition we just won't be facing during our outdoor season.

We've found that working in the rain or cold weather (even though work-outs are curtailed) simply prepares us better for any possible conditions we may meet during the outdoor season.

### THE OPPONENT

Knowing the opponent and the type of race he usually runs is of tremendous value. Knowing the coach and his usual practices is also of possible value.

For instance, there's one outstanding college coach who constantly insists that his athletes "front-run" races. Our race strategy against that opponent is easy to figure, and is almost constant from race to race.

Concerning individual athletes, you must attempt to discern if the boy in question runs on the relay team. A middle distance man who does so probably possesses fine leg speed.

Or was he outstanding in cross-country? If so, he's doubtlessly a pace runner with fine strength potential.

Who has he beaten, and how? Who has beaten him? Is he a "kicker" or "front runner," or both? All possible details must be explored if winning or losing is important.

It's also vital to observe what athletes are doubling in the particular meet. When one of your own athletes (who's not on a double) catches a doubler on his second race, he must force the pace during the initial stages—or during the first half of the middle distance race.

It's just common sense to make a tired athlete run as fast as possible as early as possible to discourage him mentally and to put him into oxygen debt for the second time as quickly as possible. Conversely, when your own athletes are running two races, do what you can to keep the race pace slow.

### PROBABLE RACE PACE

In planning pace for a middle distance race, one fact must take precedence — human limitations. How often have we seen a foolish runner shoot out at the gun and take the lead for a lap or two, only

to fade badly and often step off the track before he crosses the finish line? How many times have we seen a boy tag on to this foolish runner and also violate all reasonable pace judgment?

The first order of business, then, is for the coach and athlete to decide what maximum pace limits can be set or followed. Then only a fool would exceed them, until this maximum pace has been mastered. Once this occurs, new sights can be set.

It must be remembered that in most middle distance races, five things almost always occur:

1. The first man to set the pace usually isn't the winner, as he had to fight too hard for the position.

2. The pace of the first  $\frac{1}{4}$  of the race is too fast as men move out quickly for position.

3. The third  $\frac{1}{4}$  of the race is too slow as mental fatigue and settling down occurs.

4. The final  $\frac{1}{4}$  of the race will be fast as everyone drives for the finish.

5. The athlete who sprints or sustains any drive for position more than once during the race usually doesn't win.

In short, most middle distance men have but one sustained sprint per race. If they use their valuable energy for a silly challenge very early, they simply won't have the strength to sustain a drive at the finish.

### SELF-DISCIPLINE

No strategy or tactic will be worth much if the athlete attempting to employ it doesn't have himself under complete control. Such simple things as loose shoe laces, passing on curves when not necessary, bumping, running up into pockets, etc., have destroyed many coaches' well-planned race strategy.

It's essential to take inventory on every possible detail prior to the race. A few minutes of review prior to the race often does more than refresh memory. The athlete often, when thinking of a minor detail or two, finds himself not worrying about his race. In any case, a talk with the coach prior to the competition is welcomed by the boy.

When all else fails where strategy or tactics is concerned, an athlete cannot go far wrong if he "stays up—stays relaxed—and stays out of trouble."

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# COACHES' CORNER

## *Around the Whirl in 180 Daze*

By HERMAN L. MASIN

(Reprinted from "Curve Ball Laughs," Pyramid Books)

**March 1:** Old Phil Greybeard, 48-year-old dean of the Philadelphia Mares' pitching staff, appeared fit and trim as he entrained for the Mares' spring camp in Muddywater, Fla. "At 245 pounds I may be a little heavy," he admitted. "But I've got it evenly distributed over my frame." The 5'3" righthander expects to win 20 games this year. "And if I don't win 20, you can bet your spikes I'll improve on my 1957 record," he declared. Old Phil had a big year last season, winning 3 and losing 14—his best mark since 1936.

**March 5:** Old Phil Greybeard tried his first half-speed curve today, and is now resting comfortably in



the camp infirmary. Trainer Frank Whycheck is hopeful of a quick recovery. "The shoulder bone is still attached to the arm bone," he assured the Mares' manager, Mayo Clinick.

**March 8:** The Dean of the Mares' staff, Old Phil Greybeard, continues to amaze camp observers with his condition and strong throwing. He went one full inning in the first Yannigan-Regular practice game, and was hit for only two cheap triples.

**March 12:** With the Mares ready to start their spring exhibition series, Old Phil Greybeard appears to be the "meal ticket" of old. "My back hasn't kicked up since last December, when I had my spine removed," he alleges. "And those bone chips in my head no longer interfere with my pitching motion. Did that line drive in the first inning hurt my leg? Not a bit. Just splintered the knee cap. That's all."

**March 17:** Old Phil Greybeard started against the Pittsburgh Lawmen yesterday and retired all three men he was called upon to face! Dohald caught the first hitter's pop-up against the monument 575 feet from the plate. Ferucci then speared the second batter's soft liner just as it was about to clear the 40-foot fence



in left center, and then Old Phil bore down and got the third man out trying to stretch a triple into a homer.

**April 1:** After three consecutive innings of scoreless pitching this spring, Old Phil Greybeard has been temporarily sidelined with a mild case of senility. "Nothing to it," he sniffled. "I had it in '28 and it only laid me up for six months."

**April 14:** Manager Mayo Clinick announced that Old Phil Greybeard will definitely start the second game of Sunday's double-header against the St. Louis Bishops. "The old soupbone is as fit as it'll ever be," declares Old Phil, "and I'll checkmate every one of them Bishops." When queried about this sudden burst of metaphor, Greybeard confessed he has turned serious and is now reading the autobiography of Yogi Berra.

**April 18:** Old Phil Greybeard made his first start of the season and came through with a tremendous effort—setting an all-time mark for extra base hits allowed in two-thirds of an inning. Upon being removed with six runs in and the bases clogged, Old Phil announced that the cold weather has bothered him. "Wait till July," he vowed. "The old soupbone needs that hot sun."

**May 2:** With the Mares hopelessly trailing the San Francisco Midgets, 17-3, Old Phil Greybeard was brought in to mop up in the last two innings. He yielded three runs in the eighth on seven consecutive

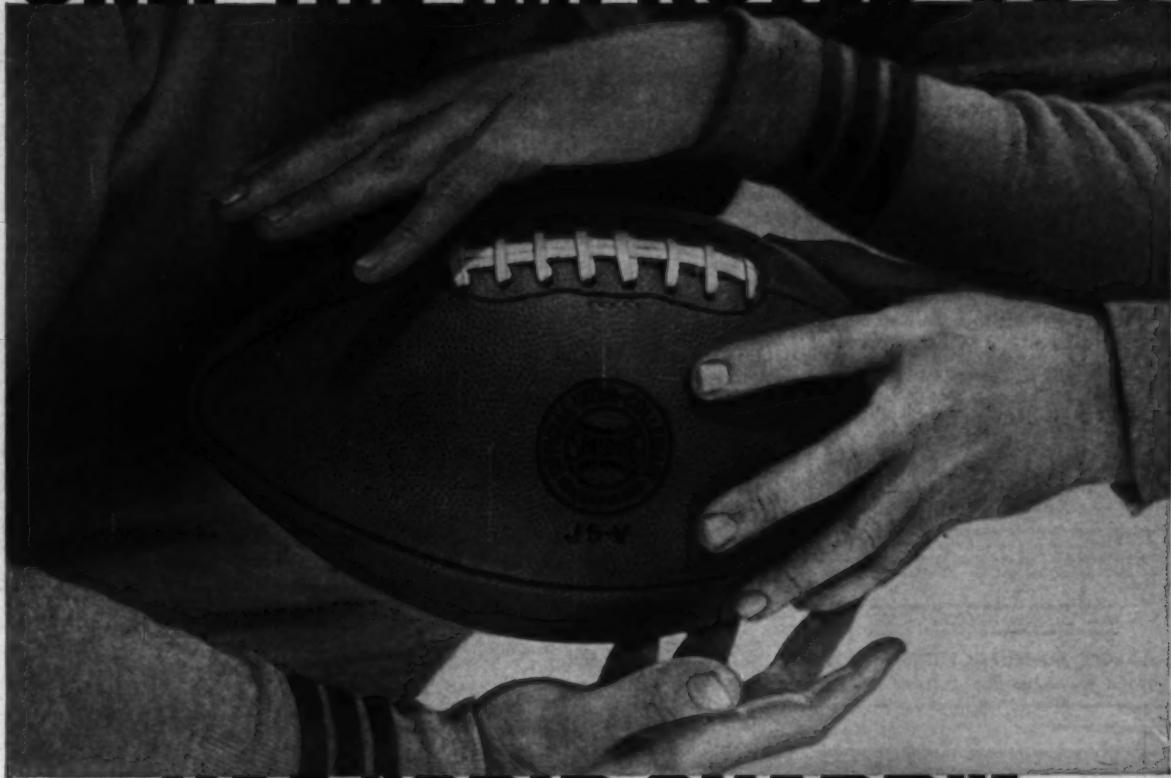


singles, then shut the door on the Midgets with the aid of an unassisted triple play. The Mares, inspired by this sensational relief stunt, went on to establish a new record by clobbering eight Midget pitchers for 17 hits and 22 runs. Greybeard then set the Midgets down in the ninth with nothing more damaging than two home runs, and ambled off the field with his first victory of the season. "I'm going to demand a starting assignment," gurgled the happy victor while taking his hormone shots in the locker room.

**June 27:** The Mares sank into fourth place last night, when the Milwaukee Cravens drove Old Phil Greybeard to cover with a 10-run barrage in one and a third innings. Old Phil blamed the evening dew for his downfall. "But I'm not alibing," he added.

**July 22:** In one of his infrequent mound appearances, Old Phil Greybeard nearly lasted an entire inning yesterday against the Los Angeles Codgers. He got two men out smoothly enough—one man for batting out of turn and the other for failing to touch third base on an inside-the-park homer—then the Codgers batted around three times. "It's those bone chips in my head," Greybeard explained under the

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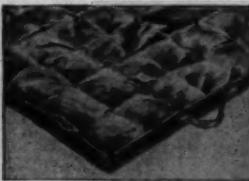
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showers. "They locked up my arm. But I'm not alibiing."

**August 5:** Old Phil Greybeard caused a sensation against the Chicago Cups in a two-night twin bill by walking a total of 14 batters in one and two-third innings. "Nothing to worry about," Greybeard assured his stricken manager. "It was that sticky summer heat. Wait till the cool weather sets in in September."

**September 18:** It was "Old Phil Night" at Mares' Park yesterday, and the Section 8 Marching and Chowder Society heaped at least \$45,000 worth of gifts upon their beloved old mediocrity. In a remarkable sporting gesture, every club in the League sent Old Phil a telegram reading: "Wish you'll be around forever, Phil." The Mares organization will perpetuate Greybeard's memory by erecting a monument on the spot where he has served so long and faithfully—under the showers.

**October 1:** Old Phil Greybeard, after 28 years of service to the Philadelphia Mares—interrupted by two world wars and the Battle of the

Alamo—has finally called it a day. In announcing his retirement, Old Phil declared that baseball is no longer fun at his age and he wanted to spend more time with his growing youngsters. "I've been away from home so long," he says, "that my younger boy has difficulty recognizing me—and he's 27 years old."

**January 17:** Interrupted in his favorite position—standing under the showers—Old Phil Greybeard coyly alleged that he hadn't said "positively" when he announced his retirement back on October 1. Informed of this sensational development, Manager Mayo Clinick entraîned immediately for Milltown.

**March 1:** Old Phil Greybeard, 49-year-old dean of the Philadelphia Mares' pitchers, appeared fit and trim as he entraîned for the Mares' spring camp at Muddywater, Fla. "I expect to win 20 games this year," he announced. "And if I don't win 20, you can bet your spikes I'll improve on my 1958 record." Old Phil had a big year last season, winning 2 and losing 17—for his second best year since 1936.

## What a Little Education Can Do

(Continued from page 5)

thought, was the perfect answer to the question of athletic scholarships.

Even if a lot of scholarship kids flop as students, even if they merely stagger through college, something rubs off on them. They acquire some fluency of speech, some sort of maturity, some social grace—which they'd never achieve without exposure to college.

That's one of the reasons we never break into a sweat over complaints about "sports factories"—that some schools have no academic standards at all: "Look at all the dim-witted athletes they're bringing in. Why, those kids haven't the marks to get into reform school."

Seems to us that anybody who lends these kids a hand is doing society a favor. These so-called "dim-wits" need college even more than their brighter teammates. Without college, they'd probably amount to nothing. With it, they stand a good chance of getting something better out of life. And that's all the justification an athletic scholarship needs.

So, perverse as it may seem, some of our college "football factories" are probably rendering just as valuable a service to society as our more

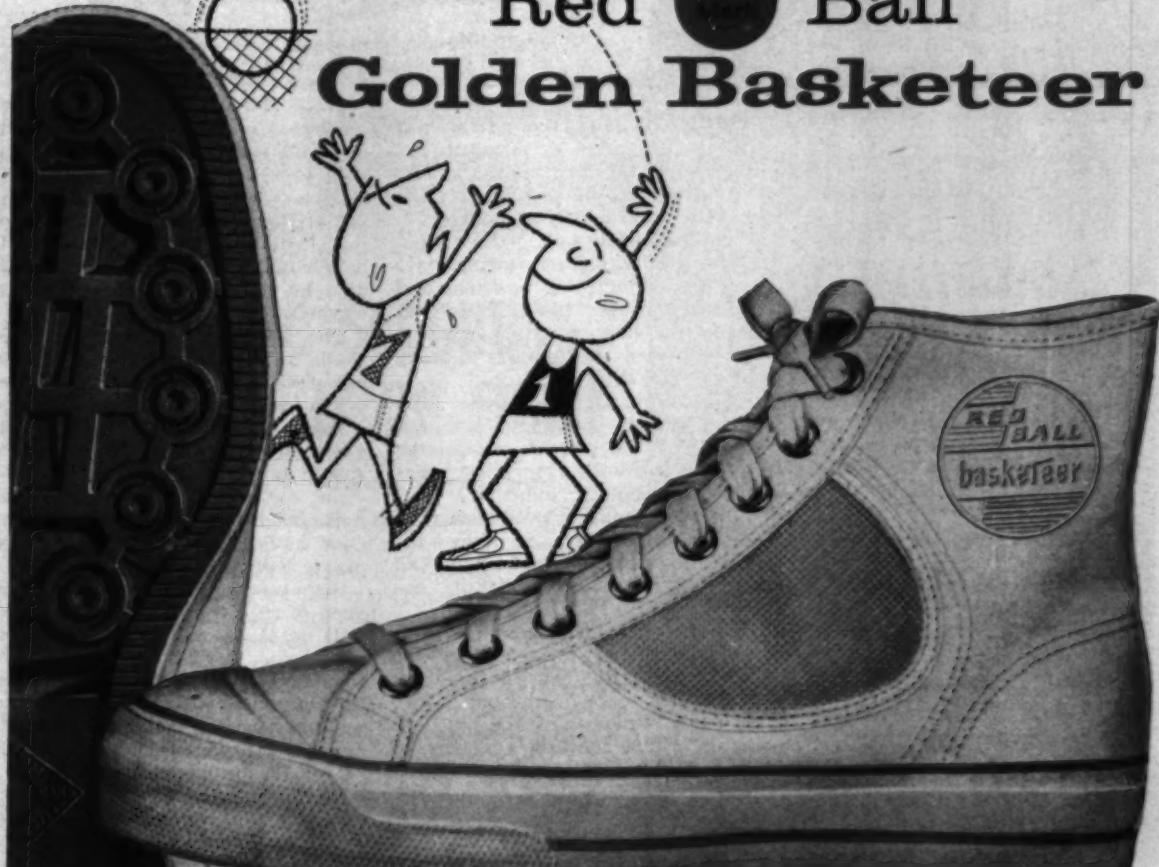
hallowed institutions of higher learning.

If schooling is so important as to necessitate compulsory education on the grade and high school levels, why do we recoil when we hear of backward kids being helped through college—even if it's their athletic skill which is paving the way?

**M**ERE mention of the term, "modern poetry," is enough to send us screaming for the woods. We just don't dig that mumbo-jumbo. So imagine our surprise when we picked up a book of modern verse (*New Poems*, Ballantine Books) and found a sports poem that really hit the spot. Written by Robert Francis, "pitcher" goes like this: His art is eccentricity, his aim How not to hit the mark he seems to aim at, His passion how to avoid the obvious, His technique how to vary the avoidance. The others throw to be comprehended. He throws to be a moment misunderstood.

Yet not too much. Not errant, arrant, wild, But every seeming aberration willed. Not to, yet still, still to communicate Making the batter understand too late.

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## Preparation for Game Day

(Continued from page 32)

fielders holding their positions.

As an example: "Runners on first and second, score even, ninth inning, one out." Then hit the ball to the outfield on the ground, through the infield, on the fly as a base hit, or as a caught fly ball.

All infielders then swing into their cut-off or relay positions and make the proper play. To further clarify the play situation, runners can be placed on the bases to carry out the offensive plays.

When practice has been conducted on an open field, and the game is to be played on a closed field or vice versa, the relay practice is particularly important.

On open fields, it's usual for the outfielders to play the relay—the nearest outfielder retrieving the ball and the next nearest taking the relay.

On closed fields, the shortstop or second baseman goes out for the relay, while the nearest two outfielders converge on the ball. Since they don't know how the ball will carom off the fence or wall, one or the other must be in position to play it.

### TIME ELEMENTS

**Several Days Before the Game:** When several days are available for preparations, each plan devised should be practiced until there's complete understanding among all team members. Further time should be spent on weaknesses, whether they be offensive or defensive.

**The Day of the Game:** The pitcher and catcher for the game, along with their coach, should make every effort to observe the batting practice of the opposition. Other members of the team who can do so should do the same. As each batter takes his turn at bat, a pitching plan can be worked out.

For example: When a batter pulls each pitch, he definitely should be pitched low and away. If he's a late swinger, pitch him high and tight. Whatever his batting faults, take advantage of them. At the same time, pass out tips on how to play each batter defensively.

During the opponents' infield practice, notice if any of the players loaf when fielding, is anyone erratic, do the outfielders and infielders throw well?

Look sharp. You may perceive faults that will enable your runners

to take the extra base. The base coaches naturally should be informed of the situation so that they can plan to help the runners along.

On a warm day, time your starting pitcher's pre-game warmup so that he'll have a few minutes rest before taking the mound. On a cold day, he may go directly from his warmup to the mound.

The length of the warmups depends on the individual—five to 10 minutes on a warm day, and more of course on a cold day.

**During the Game:** Baseball is a game of relaxation and a coach should take the attitude of an advisor, not a disciplinarian. This is particularly true of a young team. Give advice; censure only when a player loaf or doesn't try.

Sometimes a coach himself will keep score, but usually someone else will do it. In the latter case, the scorer should sit next to the coach so that the book is always available for reference. All salient comments and observations made by the coach should be written down by the scorer for future reference.

Batterymen not in the bull pen should be sitting close to the coach so that defensive-play comments can be directed to them. The other players on the bench should also be listening and learning.

The mastery of theoretical fundamentals is important. But observation of, as well as participation in, actual game situations helps make the good player.

(Coaches interested in a complete signal system are referred to Coach Vogel's article last month—"A Complete Baseball Signal System".)

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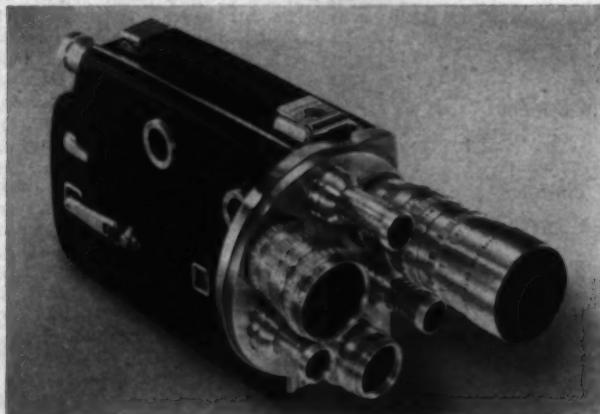
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## Big League Batting

(Continued from page 7)

important things in batting, but one of the basic rules is to keep your eye on the ball. As to young players, I believe they can never get enough practice. Always play the game with the thought in mind of bettering your last performance.

**JACKIE ROBINSON:** The most important fundamental as far as I'm concerned is keeping your eye on the ball. I can't tell a boy how to apply it except to work at it.

**GEORGE KELL:** I would advise getting a bat you can handle, not too heavy, not too light, but one you can control. Next, select a stance that's comfortable to your body. You must be solid on both feet with the balance of power on the back foot. Find out where your strike zone is and lay off bad balls. Practice hitting down on the ball, never uppercut; this creates more line drives and hard ground balls.

Above all, if you're not blessed with power, learn to take advantage of every situation—bunt, hit-and-run, and placing the ball.

**MICKEY VERNON:** Many things can be said about hitting and to list the most important things in order I'd have to put good eyes and timing first. Naturally, that covers the first rule in the book: "Keep your eye on the ball."

Then get a bat you can handle. Stance isn't too important unless it's to alter the swing or stroke so that it will be level. Leave the uppercut swing to the real big and strong boys.

**PEEWEE REESE:** The two points I'd like to bring out are keeping your head still and overstriding. When I first broke into pro ball, I was told that a good hitter could sit a glass of water on his head and stride and never spill a drop. This may help in teaching a young boy to keep his head still. Every time he takes batting practice, he should try to hit a few balls to the opposite field. From my own viewpoint, I believe this makes you watch the ball longer.

Overstriding is something I often do myself. I try to correct myself by trying not to swing too hard and not starting my stride too quickly. That is, to wait a little longer on the ball. Overstriding is a very bad habit to break, and it's very important to catch it while you're young.

These are the two points I feel are most important. They sound simple, but seem to be hard to do, even for professionals.

**AL KALINE:** I think the most important thing for a young boy is to learn to just meet the ball instead of trying to kill it. Try to build the wrists and grip.

**HARVEY KUENN:** Be comfortable. Keep your head down. Keep your shoulders level and hit the ball where it is pitched. You can help young ballplayers by one means: Have them practice and play whenever they can.

**RICHIE ASHBURN:** My idea on the most important phase of hitting is timing. To achieve it, you must practice, practice, etc.

Another asset is knowing the strike zone. You must not have a weak spot in the strike zone or pitchers will exploit it.

In teaching youngsters, try to help them overcome the fear of the ball. Once they do this, they can learn to hit.

**ENOS SLAUGHTER:** In batting, first get a light bat, one that feels well-balanced when you swing it. Next, get a stance that has the weight even on both feet—arms out from body with bat back, ready for any pitch.

**BILL VIRDON:** 1. Watch the ball from the time it leaves the pitcher's hand until it hits your bat.

2. Try to hit the ball straight-away. You'll naturally pull away if the ball is inside or step into it if the ball is outside.

3. The best advice I can give any young player is play and practice as much as possible. This is the only way you can improve. You yourself, are the only one who can make yourself a better ballplayer.

**WALLY MOON:** 1. Assume a comfortable stance with which all portions of the strike zone can be covered easily.

2. Swing the bat on a level plane most of the time.

3. Get on top (swing down) of high pitches.

4. Step and hit the ball as it is pitched.

5. A complete, easy follow-through.

**BOB NIEMAN:** It has been my experience that a must for good hitting is not to watch the pitcher's face, but rather a spot about two feet out from his shoulder. This enables the batter to pick up the ball more quickly, and he won't have to shift his eyes from the pitcher's face to his arm.

**JOE ADCOCK:** Try to keep your weight on your back leg and not lunge at the ball.

**AL ROSEN:** 1. Confidence: (a) Being at ease, (b) comfort in the batter's box, (c) comfortable stance.

2. Concentration: (a) desire, (b) determination.

3. Level swing: (a) arm closest to the pitcher should be parallel to the ground, (b) head of bat should never be lower than the shoulder, (c) swing should be a circle, try to hit the pitcher with the head of the bat, (d) follow-through.

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**GIL HODGES:** I'm certainly not an authority on hitting. I do know a few things, though, and one of them is to be in a comfortable position at the plate—to be relaxed and not all tied up.

Keep your head still and try to see the ball hit the bat. This is very difficult, but by trying it a person will follow the ball much better.

Take a nice, level cut at the ball. Don't try to swing the bat too hard.

Step into the ball with your left foot or right foot, depending on which side you hit from.

Don't pull your foot, leg, or shoulder away from the ball.

When you go to the plate, just concentrate on hitting the ball. I guess that's about it.

**FRANK THOMAS:** The most important fundamentals in batting, in my opinion, are as follows:

1. Feel comfortable at the plate with your body as well as your bat.

2. Watch the ball as soon as it leaves the pitcher's hand.

3. Practice watching the ball for a while to learn the strike zone.

4. Practice more than you actually play. By that, I mean practice the things you don't do well. Everyone likes to do the things he does well, but puts off those he can't do well.

**DEL ENNIS:** I'd tell young fellows to just be themselves at the plate; to take their natural stance and not copy anybody in particular.

**PETE RUNNELS:** 1. Select a bat suitable to yourself—not too light nor too heavy, one that you can control at all times. This will help on the tough pitches, say high and tight.

2. Be comfortable at all times, regardless of the stance.

3. I use a medium stance and try to keep the bat still, and swing on balance. I think the feet have a lot to do with hitting.

4. Keep your hands alive at all times. This will help you pull the ball.

5. Keep the head still and always have a level swing. "Believe that you can hit all pitching."

**GIL McDougald:** To me, hitting is something that can't be taught, but comes under the title of natural ability.

You can improve your batting prowess only by working on it at the various parks, not by reading books on it.

The best thing you can tell a youngster is to watch the ball. Follow it from the time the pitcher has it until it goes over the plate.

**JIM LEMON:** To me, the most important fundamental in hitting is the ability to wait and hit—which means a hitter must be able to wait until the last split-second before committing his weight and direction of swing. He therefore won't be a dead left or right field hitter and will spread the defensive team, leaving more territory for base hits to fall into.

**GENE WOODLING:** The things I think are important in hitting are:

1. Not to swing too hard at the ball.
2. Try to use your wrists as much as possible.
3. Never take your eye off the pitcher after he starts his wind-up.
4. Keep your head as still as possible when swinging.

**ELMER VALO:** The main fundamental in being a good hitter or ball-player is practice, practice, and some more practice.

**DICK WILLIAMS:** I'd say that "plate control" has been a big factor for me. Being able to reach a ball on any part of the plate and hitting it to that part of the field will naturally give you more hits.

To have "plate control" the batter, after taking his natural stance, should keep his front shoulder in toward the plate. Even if the batter steps in the bucket or overstrides, by keeping his front shoulder in he'll still be able to hit the outside pitch. Tommy Holmes, one of my teachers, is a great believer of this.

**JERRY COLEMAN:** Briefly, one thing that might help young ball-players would be to hit according to their own physical capabilities. Too many players who lack the necessary power are trying to knock the ball out of sight because it happens to be the fad. I tried it for three years and went backward rather than forward, with my average suffering each season.

**STAN LOPATA:** A few specific things are basic for young ballplayers:

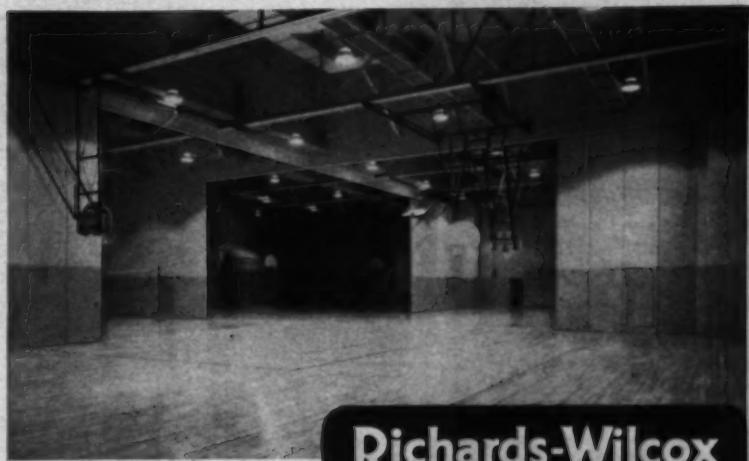
- 1 Get a stance which is comfortable and be relaxed at all times.
- 2 The big thing is to learn your strike zone and try to lay-off bad balls.
- 3 Each time you swing a bat, you should get a piece of the ball. This doesn't mean necessarily to get a base hit—first get a piece of the ball.
- 4 Don't copy anyone's stance; you might not be comfortable with it. Find a stance best suited to you as an individual.

**AL DARK:** 1. Some natural ability.  
2. Guts.

3. Develop good batting habits at a young age, such as: (a) short stride, (b) keeping your head still, (c) a level swing, (d) hitting to all fields.

4. There's only one way to apply it—practice until your hands are raw.

In assessing this material, certain points seem to recur with regularity. The principles which stand out include using a bat which can be well-controlled; striving for a feeling of comfort; seeking a level swing and good body balance; attempting merely to meet the ball well (not overswinging); waiting for a good ball to hit; taking a short stride with the head held still; adopting an air of deter-



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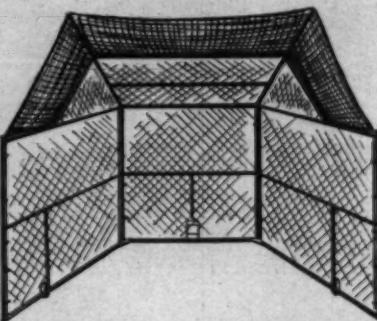
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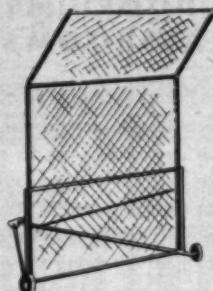
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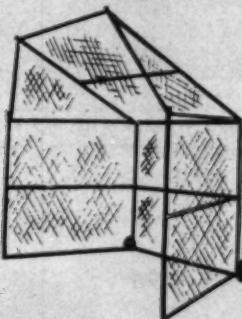


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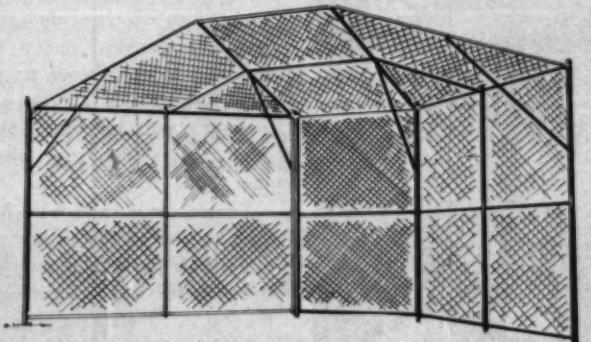
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mination and acquiring confidence; always being set for the fast ball; practicing just as often as possible; and, above all, following the ball intently right up until the time it meets the bat.

There are, of course, many other points which have been discussed and which are highly important. One which should be repeated for emphasis because it's so rarely touched upon is the principle of the split-second wait immediately following the completion of the stride and back-swing. It's here that necessary adjustments in timing and to the height of the pitch are made. Needless to say, this is absolutely vital to good hitting.

Baseball's outstanding hitters, although placing stress on different points, all seem to agree on certain basic essentials. Their ideas should impress aspiring ballplayers with the fact that even the great stars still realize the importance of rudiments and are ever-conscious of the need of applying the basic fundamentals to their own batting efforts.

## Pole Vaulting Techniques

(Continued from page 24)

ifications other than height, which is a must!

Gutowski: After a person has perfected his form, speed is the most important factor at extreme heights. I believe that in the next three years, the record will fall. Bragg could do it next year and I believe I can also come close to it. I don't think that in the next 10-20 years, vaulting will change much. Right now I see the best vaulting within the next 5 years, after which I think it will drop off again. I think a vaulter needs 8-10 years of experience before he can begin to know how to vault consistently. At least I've found this to be true. I believe that the record can be somewhere near or over 16 feet. If a vaulter could hold high enough and not lose control, the record would be, or could be, even higher. Logically speaking, I think the only factor that could delimit the record would be to hold higher on the pole.

Laz: It would be foolish and narrow-minded to think there's a maximum. Barring changes in the human body, all events will continue to improve slowly. Within 5 years, there will be a 16-foot vault. I've found that concentration is a "must." A vaulter must be able to analyze his faults immediately and correct them. A vaulter must love vaulting and live it day and night. Maturity is a big factor in performance. Look at the ages: Richards 30, Laz 27, Mattos 26, Lundberg 32, Landstrom 28, Welbourne 25, Barnes 26. Meadows was 34 when he made 14'8" in an indoor meet. Most important is, never say die—just keep at it!

**Poucher:** I feel there'll be a 16-foot vaulter within a few years. Don Bragg possesses most of the characteristics necessary to this end. There'll be improvements in future years in the height of the hand-hold to 13'8" or so of effective grip. If the 16-foot is to come, it will come because of one added factor not utilized sufficiently today—SPEED. Much more speed can be generated on the runway and transformed to the vault. Perhaps the secret is in DRIVE OFF THE RUNWAY. Certainly a vigorous foot stamp would do more to transfer ground speed to vertical lift. I believe this is the one deciding factor in Bob Richards' success. He generates a great deal of speed and because of his tremendous drive, he's able to transfer it to his swing. I'll agree that much of his style on top of the bar is faulty, but it goes to prove that his drive and swing overcome this and makes room for many 15-foot vaults.

**Morris:** I think some vaulter will clear 16' in the next few years. With the new improvement in poles as well as better training, vaulting should become much better. I think the ultimate vaulter will be one who can run and who can hand-hold 14'. With a 3'6" push on top of a 14' hand-hold, he will make 17 feet.

**Levack:** I also believe that Don Bragg is the only vaulter capable of a 16 foot vault within the next five years.

**Commentary:** The essentials of good vaulting are quite easy to express and equally easy to confirm by scientific investigation—although somewhat laborious as far as procedure is concerned.

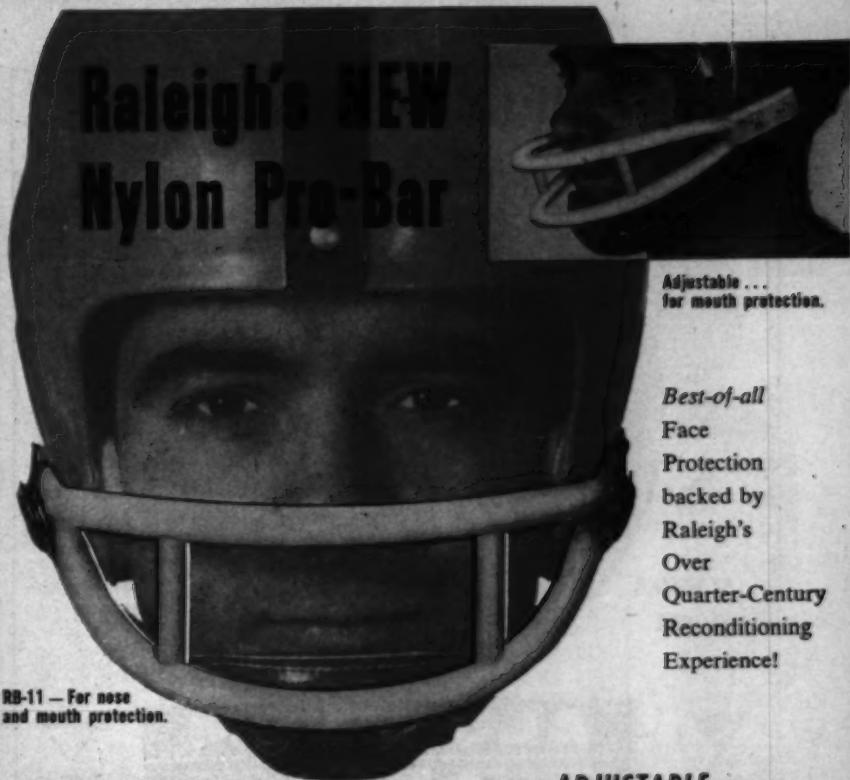
Under ideal conditions, the run should be as fast as can be controlled, the grip on the pole should be as high as possible, the push-off as vertical as possible without killing the forward carry over the bar.

From a PRACTICAL viewpoint, low heights should be cleared with a low hand-grip and an easy run, thereby effecting a conservation of energy, whose vital force is so indispensable at extreme heights. A high grip always requires a faster approach or more delay in the swing. In general, the higher the bar the more delay there is in the vault. Few vaulters seem to grasp this concept easily.

Working with a low grip will develop comparable timing in the vault, but the timing won't be IDENTICAL to that required at great heights. That's why many vaulters who look exceptionally good at 12-6 fall apart when the bar is raised to 13-6, where the timing is different.

I'm convinced that most top-notch vaulters know if a good jump will be made the instant they complete the take-off. This sense of well-being and control is something every vaulter must develop.

A great factor in this feeling of security is a smooth and early pole plant. Most vaulters throw the pole into the box too late, which doesn't give them the fraction of a second



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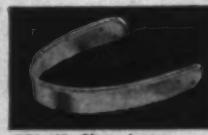
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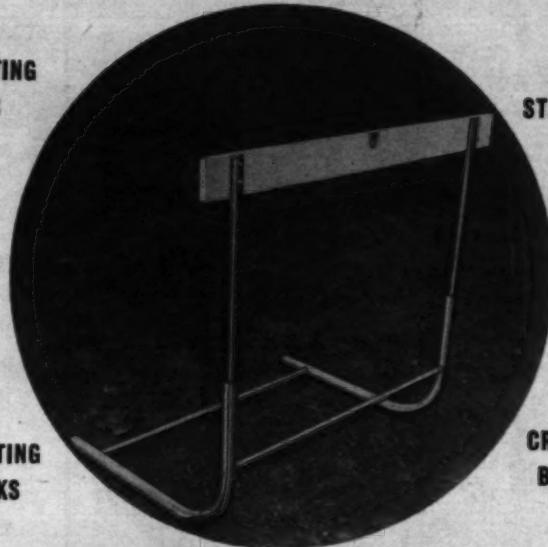
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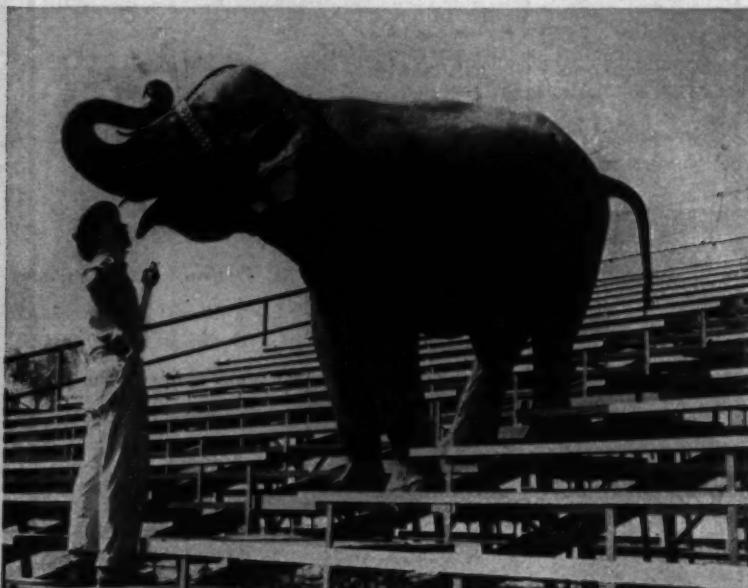


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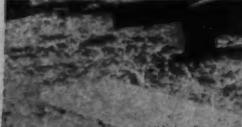


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necessary to "get set" on the pole . . . a firm grip and a feeling of power in the arms.

A vaulter needs: (a) great interest, (b) aptitude, (c) willingness to work extra hard, (d) constant study of himself and his competitors, and finally (e) the ability to INTEGRATE all the essentials in the one second it takes to make a vault.

## BODY CONDITIONING

One factor must dominate the athlete's conditioning above all others. SPEED OF MUSCULAR RESPONSE IS THE PRIME ESSENTIAL. A strong man may lift a great weight slowly, but a pole vaulter must lift his own weight against the force of gravity with speed.

POWER not STRENGTH. This means that it's wiser to do a lot of light, fast exercises than to do a lot of heavy, slow lifts. Ohe of Japan, a consistent 14' vaulter, never weighed more than 136 pounds. Boo Morcom weighed in around 140-144 pounds. Earle Meadows, at the time of his retirement in 1948, weighed only 155 pounds. All of these men were exceptionally fast in their muscular reactions.

Since pole vaulting is a smooth timing operation, swinging type and rhythmic type exercises are often desirable.

Parallel bar mounts and dismounts are excellent exercises to develop the shoulder girdle and build up the pusher (tricep) muscles. While supporting the body with the arms and hanging between the bars, a certain amount of trunk and leg swinging will prove helpful. Swing the legs up in front of the chest, breaking the knees and hips as they come forward on the up-swing. On the back swing, fold the legs up backward to develop the back muscles so useful in the fly-away over the bar. Walking along the bars feet down or head down from end to end is also a good exercise for the parallel bars.

On the high bar, kip-ups, swinging exercises, and pull-ups are the key exercises. A well-conditioned vaulter should be able to pull himself up on top of the horizontal bar from a dead hang without lying on the bar. Bar-circling exercises, skinning the cat, and similar activities all help to stretch and strengthen the shoulder girdle.

Every vaulter must learn to walk and stand on his hands. Some vaulters become confused by the fact that they get upside down in the vaults above their hand-grip, and this is never a good situation. A vaulter must have confidence in himself irrespective of the position he's in.

Walking on the hands can be started even if you have to keep your feet against the wall in the beginning. Push-ups from the floor are a basic exercise and any vaulter should be able to do 25 of these at one time without too much effort. In your workouts, work one group of muscles

at one time, alternately resting. Keep the workout going. A half hour is enough time, not counting showers.

Flexibility work and thigh flexor work is a must. Simple sit-ups are a relatively mild and more or less useless exercise. Some men can do more than 6000 sit-ups at a single sitting, which emphasizes how little strain this exercise places.

The following exercises are a substitute for sit-ups and leg-lifts which can be used for a warm-up: Place a low bench near a wall or pipe (stall-bars are best) and place the bench under your seat so that your hip bone lies just past the end of the bench, the feet having been hooked under the bar or pipe. Now, while stretching the arms overhead, let the body down slowly until the hands, head or both touch the floor. This places the body in a back-arch position and puts the principal flexor muscles of the thigh (iliacus and psoas) under maximum stretch. It's possible to increase the intensity of this exercise by holding a small weight in the hands.

Weight-lifting is very useful when properly performed. Use relatively moderate weights. For a well-conditioned man, a 120-pound press shouldn't be too much. Go to full stretch on all pressing types of exercises. Curls are great for quick build up of the arm flexors. Use 40-60 pounds in the beginning and build this up gradually. Twenty exercises a day of any type should be enough. Add pull-ups on a rope to your curls. Don't do too much rope climbing and never within a day or two of a meet; it will take the SNAP out of your muscles. Stop all heavy muscle work on Wednesday.

Basic body-building should be done in the gym in the fall and before December for men who jump indoors. Take heavy workouts at this time and ease off during the season. Three days a week of vaulting are plenty. Save your SNAP.

### KEEP YOUR ELBOWS IN WHEN YOU BUNT!

THE ex-big league star and minor league manager, George Selkirk, offers a nugget on the cause and prevention of bunting bad balls:

"If a man holds his elbows in at his sides in a loose, relaxed manner, he can't bunt a bad ball. A batter who does this will have a range of only about a foot or a foot and a half to bunt in."

"The pitchers, of course, are always trying to make you bunt a bad ball, but it's impossible to do if you follow this system—unless of course you hold the bat straight up to get at one.

"A man who holds his elbows out has practically an unlimited range. He can bunt a pitch that's up around his chin or he can get down for one that's around his knees. The general result is a lot of pop-ups and bad bunts."

# "High School Riflery Helps in Service and College"

Writes **SCOTT A. EDGELL**

Instructor, Willoughby High School Rifle Club



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1957  
**STATE  
HIGH SCHOOL  
FOOTBALL  
CHAMPIONS**

**SEE PAGES 54-55 FOR COMPLETE 48-STATE CHART**

**C**OACHES of the nation's high school football champions oppose the new collegiate rule for points-after-touchdowns, according to a survey made by *Scholastic Coach* in conjunction with its annual statistical report on the nation's 70 outstanding football teams.

Of the 54 top coaches answering the question: "Do you favor adoption of the collegiate rules on points-after-touchdowns?", the consensus was 2 to 1 in favor of the present high school rules. Here's the way the replies lined up:

<i>Unqualified "No"</i> .....	31
<i>Unqualified "Yes"</i> .....	15
<i>Qualified "No"</i> .....	3
<i>Qualified "Yes"</i> .....	4
<i>Undecided</i> .....	1

The results were somewhat surprising in view of the general feeling that schoolboy coaches were violently opposed to the new college rule, which grants two points for a successful three-yard rushing or passing attempt after a touchdown. It must be remembered, however, that the replies came from mentors who'd have less trouble than most in rushing or passing the ball across the 3-yard line.

The four coaches who gave qualified "yes" answers to the new collegiate rule cited the following reasons: (1) would not object to rule change, (2) prefer to wait a year, (3) may help the game, and (4) willing to try it out.

One coach who voted "No" stated that it would be satisfactory if the ball were placed on the 2-yard line instead of the 3. Another simply commented, "not as is." Perhaps the most interesting comment came from Jim Malosky, coach of Edina-Morningside (Minn.) H. S., a suburban Minneapolis school considered the Gopher State champion. Coach Malosky wants to reverse the procedure completely—awarding two points for a successful kick and one point for a successful run or pass!

Whether Coach Malosky was aware of it or not, the *Madison* (Wisc.) *State Journal* published a survey of Southern Wisconsin schools on November 10, 1957—before the new collegiate rule was adopted or even considered by anyone—showing that in 251 prep games only 50% of the conversion attempts was made.

(Continued on page 56)



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(ABOVE) Assembly of steel structure is completed by attaching cross braces to frames with wing nuts.

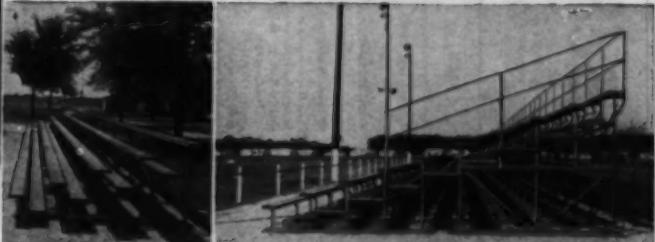
(LEFT) Optional slide plank boulders for frequently disassembled bleachers.

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SCHOOL		COACH	RECORD	BASIC OFFENSE	SUPPL. OFFENSE	POINTS SCORED AGAINST	YARDS RUSHING PER GAME	TOTAL PASSING OFFENSE	YARDS BACKS (Offensive Team)	WEIGHT LINE BACKS	WEIGHT TWO-WAY PLAYERS
ALABAMA	Walker County	D. Joe Gendrell	16-0-0	Notre Dame Box	T	220	20	239	29	348	171
ARIZONA	*West Phoenix	Vern Brusich	8-1-0	Split T	Wing T	240	70	260	44	326	183
ARKANSAS	*Little Rock Central	Wilson Matthews	12-0-0	Multiple (SW,T)	Wing T, Spread	223	52	234	36	320	205
CALIFORNIA	Berkeley	Fred Moffett Rolle Ellerts & Gus Headington Leile Katiatoff Jim Blewett	8-0-0 11-1-1 10-0-0 9-2-0	T	Slot T	160	229	29	248	184	182
COLORADO	*Grand Junction	Gene Ridgeway	11-1-0	T	Flankers	178	82	194	70	221	148
CONNECTICUT	New Britain	Terry Apisso	6-1-1	Winged T		161	75	161	75	190	150
DELAWARE	Selbytown (Wilmington)	Dim Maniero	9-0-0	Split T		218	8	176	154	230	185
D. C.	St. John's	Joe Gallagher	6-1-2			170	47			185	148
FLORIDA	Miami Edison	Jim Powell	10-0-0	Split T		292	103	279	29	308	185
GEORGIA	*Atlanta Northside	Wayman Creek	12-1-0			205	46			190	158
HAWAII	*Bishop (Honolulu)	Ticky Vasconcellos	11-0-0	Split T	T, Spread	279	69	265	31	236	200
IDAHO	Pocatello	John Evans	7-0-3	T	Spread	143	31	170	75	245	190
ILLINOIS	Mount Catholic (Ch.) Bismarck Township	Joe Maggs C. M. Stark	11-2-0 9-0-0	T	Double Wing Multiple	260	121	310	31	341	186
INDIANA	Reitz (Evansville)	Harmon Byars Pete Rodzinski	10-0-0 9-0-0	SW, Multiple Single Wing	Spread	246	44	274	97	371	169
IOWA	Davenport	A. J. Steffo	9-0-0	Split T, SW		229	32	243	37	260	185
KANSAS	Lawrence	Allan Weland	9-0-0	Split T	Single Wing	246	31	239	43	282	190
KENTUCKY	St. Xavier (Louisville)	Johnny Melhus	10-0-1	Split T	T	303	32	214		185	170
LOUISIANA	*Lafourche (Baton Rouge)	Fuzzy Brown	9-2-2								3
MAINE	Lewiston	Norman Parent	7-1-0	T	Wing T	187	50			182	158
MARYLAND	Fort Hill (Cumberland)	William P. Hahn	16-0-0	Split T	Variations	342	45	247	74	321	173
MASSACHUSETTS	*Lawrence Swampscott	Ed Buckley Stan Bandelovich	8-0-0 9-0-0	Slot T	Split T Flankers	240	42	271	89	340	190
MICHIGAN	Midland	Bob Stoops	8-0-0	Wing T (Split)		248	39	240	78	338	200
MINNESOTA	Eldina-Morristide	Jim Melokey	9-0-0	T	Wing T, Slot T	253	39	328	61	389	184
MISSISSIPPI	Grenville	Harwell McPhail	9-0-2	T	Flankers	150	51			172	153

MISSOURI	North Kansas City	Leland O'Dell	9-0-0	T	292	13	253	94	346	191	148	6		
MONTANA	*Missoula County	Royal Morrison	4-0-0	T (Bally)	134	54			162	167	167	9		
NEBRASKA	Omaha South	Cleatus Fischer	7-1-0	T	184	104	240	61	261	160	160	5		
NEVADA	Las Vegas	Angie Callis	7-2-0	Split T	205	118	253	33	264	185	176	7		
NEW HAMPSHIRE	*Spaulding (Leicester)	Tom D'Ercole	8-0-0	Wing T	315	34	295	22	227	177	163	9		
NEW JERSEY	Blairstead Clifford Hennicke	Joe Baggett Lou Gossen Cliffy Anderson	8-1-0	Split T with Flankers and Spreads	183	75	273	151	444	172	172	5		
NEW MEXICO	*Artista	Reese Smith	13-0-0	T	318	117	291	55	246	189	187			
NEW YORK	Hempstead Long Island Central Kingston M. Francis (Skinny) St. Joseph's (Buffalo)	Robert Roy Schaeffer Robert Dwyer William Burke Vincent O'Connor William Flitherry	7-1-0	Split T	160	50	206	24	230	162	168	8		
			8-0-0	Split T	240	62	253	53	256	194	179			
			7-0-0	Split T	219	58	235	75	220	180	174	7		
			7-0-0	Split T	217	25	260	66	266	199	165	6		
			8-0-0	Split T	185	72	294	55	349	187	172	9		
NORTH CAROLINA	*Salisbury Boydton	Bill Ludwig	9-1-1	Single Wing	248	52				180	165			
NORTH DAKOTA	*Fargo Central	Key Olson	8-0-1	T	SW, Split T Formation	311	34			164	176	8		
OHIO	Berea/Cincinnati (Cleveland)	Augie Bosse	16-0-0	T	221	49	301	50	261	190	176	7		
OKLAHOMA	*Ada	Evron George	13-0-0	Split T	526	65	382	55	437	187	175	7		
OREGON	*Jefferson (Portland)	Tom Daubois	11-0-0	Unb. T	Single Wing	324	81	350	110	440	190	179	8	
PENNSYLVANIA	Z.Wilkinsburg La Salle (Philadelphia) Lancaster	Clarke Miller John F. Plummer Ray Kent Roy Spangler	10-0-0	Split T	57	213	80	273	170	178	160	8		
RHODE ISLAND	%Providence Central %Mr. Pleasant(Pevidence)	Bill Kuchnicki Irving Nelson	9-1-0	Split T	224	62	214	77	250	193	167	7		
SOUTH CAROLINA	Greenwood	J. W. Bobb	9-1-1	Punt	193	73			241	185	167	11		
SOUTH DAKOTA	Washington (Sioux Falls)	Grant Heckathorn	6-1-0	Mutt (SW, Split T, Bally)	151	130	179	129	306	173	160	5		
TENNESSEE	Chattanooga Central	E. B. "Red" Effer	10-0-0	T	Unbalanced T	225	32	206	61	267	185	165	8	
TEXAS	Highland Park (Dallas) Nederland	Thurman L. Jones Emmett McKenzie	12-1-0 14-0-0	T, Wing T Split T	423	78	283	57	340	178	167	7		
UTAH	*Box Elder County	Earl Ferguson	10-1-0	Single Wing	239	101	153	58	211	172	154	9		
VERMONT	Burlington	Andrew Nowicki	8-0-0	T-Flanker	④	Unbalanced T	231	50	246	24	292	180	166	8
VIRGINIA	*Jefferson (Roanoke)	Rudy Rohrbach	8-1-0	T	Multiple-T	264	67	287	67	354	172	174	7	
WASHINGTON	Ballard (Seattle)	John Barnes	7-0-1		168	28				173	156			
WEST VIRGINIA	*Weirton	Burdell L. Cawley	11-0-0	Wing T	Single Wing	270	64	227	62	309	185	179	6	
WISCONSIN	Madison West Waupaca	Fred Jacoby Win Rockmeyer	8-0-0 7-1-0	T Single Wing	323	47	276	127	403	192	181	4		
WYOMING	*Powell	Harold Head	11-0-0	Wing T	235	74	271	64	337	179	169	9		
					National Average	251	67	289	183	163	167	7		

Note: Lawrence (Mass.) and Chaffee/Berg (Tenn.) both lost post-season games

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### Football Champions

(Continued from page 52)

Bob Hooker, writing in the *Journal*, revealed that 578 points were made after 1,155 touchdowns. As might be expected, the schools in the largest conference—the Big Eight—exhibited the highest degree of proficiency with 63%, while schools in one small conference converted only 41% and schools in an eight-man football league succeeded on only 36% of their tries. Unfortunately, the survey didn't break down the number of attempts by kicking or by other means.

Best individual average was recorded by Cuba City, which converted 10 of 11 tries; while two other schools bettered 80%. Hooker stated that in 362 games the conversion attempt spelled the difference between winning or tying in 20, or 5.5%. His statistics seem valid for prep football as a whole.

Surprisingly, no coach advocated the abolishment of the PAT.

Certain trends could be noted in the replies to the 1957 questionnaire. One is a slight regression from the Split T, which had 28 advocates in 1956 but only 22 in 1957. Five schools were basic single-wing attackers, as compared to 3 last season, while 19 used the tight or straight T formation.

Another important trend is that toward multiple offense, the extensive use of flankers and slot backs, split ends, and spread formations. The complexity of modern defense is indicated in the fact that the offensive figures of the championship teams in 1957 were well below those in 1956. Only 18 teams bettered last year's rushing average of 264 yards per game, while just 21 bettered last season's 328 yards total offense figures.

In 1956, Downey (Calif.) High School (which is also listed in this year's tables) led the champions in rushing with a 369 yards per game average, with 13 schools surpassing the 300 yards per game mark. The past year saw only seven of the leaders over 300. They were:

1. Ada, Okla. (Split T) . . . . . 382
2. Jefferson, Ore. (Unbalanced T) 350
3. Walker County, Ala.  
(Notre Dame Box) . . . . . 339
4. Edina, Minn. (Straight T) . . . . . 328
5. Bloom Twp., Ill. (Split T) . . . . . 310
6. Cleveland Benedictine  
(Straight T) . . . . . 301
7. St. Francis, N.Y.C.  
(Belly Series) . . . . . 300

Ada High School, incidentally, possesses a masterful coach in Elvan

George, and even though it doesn't play in Oklahoma's largest enrollment group, it manages to beat the champs of that group with great regularity. In 1956, Ada ranked fourth in rushing with 346 yards per game, while it went over 400 yards in total offense in both the past two seasons.

Only five schools in 1957, as opposed to 10 in 1956, passed for averages of better than 100 yards per game. Salesianum Catholic High of Wilmington, Del., topped the champions with an average of 154 yards per game. But Coach Dim Montero's boys could hardly be classified as aerial acrobats. They also happened to compile the best defensive record among the champions—yielding a mere eight points in nine games!

Following are the five top passing averages:

1. Salesianum, Del. (Split T) . . . . .	154
2. Clifton, N.J. (Split T-flankers) . . . . .	151
3. Sioux Falls, S.D. (Multiple) . . . . .	129
4. Madison West, Wis. (Straight T) . . . . .	127
5. Montclair, N.J. (T and Spreads) . . . . .	124

Four teams—Jefferson, Clifton, Ada and Madison West—a drop of five from last year, broke the 400-yards-per-game mark in total offense. The table of the 10 leaders show rushing, passing and total yardage in that order:

1. Jefferson, Ore. . . . .	350-110-460
2. Clifton, N.J. . . . .	293-151-444
3. Ada, Okla. . . . .	382-55-437
4. Madison West, Wis. . . . .	276-127-403
5. Edina, Minn. . . . .	328-61-389
6. St. Francis, N.Y.C. . . . .	300-86-386
7. Evansville Reitz, Ind. . . . .	274-97-371
8. Walker County, Ala. . . . .	339-29-368
9. Lawrence, Mass. . . . .	271-89-360
10. Montclair, N.J. . . . .	234-124-358

With the exception of Walker County, the nine offensive leaders chalked up a much greater percentage of their yardage through the air than the 1956 leaders—despite the

(Concluded on page 62)

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FELICITOUS indeed is this combination of a great big leaguer and an astute schoolboy coach. Students of batting will find all the answers to scientific hitting in this book.

A clear, complete, thoroughly authoritative treatise, the book neatly pinpoints every phase of the art. The subject material is covered in 18 detailed chapters, namely:

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Each of these subjects is covered beautifully and interspersed with numerous references to famous hitters. The end result is a superlative addition to the literature on batting.

- **QUARTERBACK GENERALSHIP AND STRATEGY.** By Don Fuoss. Pp. 154. Illustrated—diagrams. New York: Prentice-Hall, Inc.

A HIGHLY successful coach on both the college and high school level, Don Fuoss is a brilliant, highly organized craftsman ideally qualified for technical writing.

His book is a smashing success. Meticulously organized and graphically projected, it offers a comprehensive guide to the development of first-rate quarterbacks. Coach Fuoss seems to have absorbed everything anyone has ever written on the subject. His book is loaded with trenchant references from many sources. The result is a thorough, completely modern coaching handbook.

The subject material is covered in 12 information-saturated chapters: The Importance of Proper QB Generalship and Strategy, Selecting the QB, What Should Be Taught the QB, Methods of Training, QB's Knowledge of Defensive Assignments, General Principles, Guides Relating to the Running, Passing and Kicking Games, the QB's Map, the QB's Manual, and Fundamental Principles of Generalship.

Each of these subjects is covered in great detail. In the chapter on Knowledge of Defensive Assignments, for example, the author tells you exactly how to train the qb to recognize and classify all the defensive alignments. Each alignment (Tight 6, Wide Tackle

6, Gap 8 or 6, 6 Overshift, Eagle Defense, Oklahoma 5-4, etc.) is diagrammed, its strengths and weaknesses indicated, and the plays that go best against it explained.

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- **MODERN BOWLING TECHNIQUES.** By Junie McMahon and Murray Goodman. Pp. 80. Illustrated. New York: The Ronald Press Co. \$2.95.

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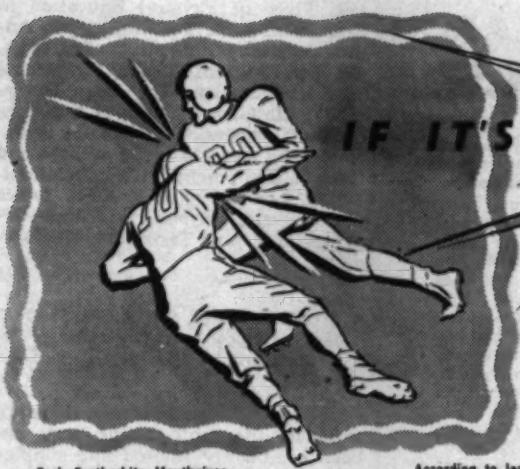
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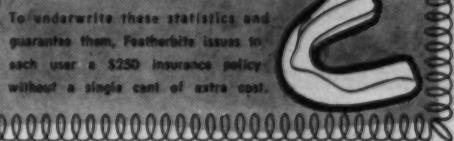
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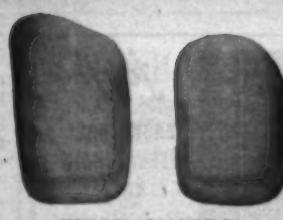


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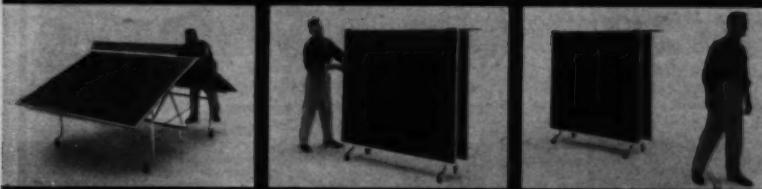
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- RECREATION AREAS - THEIR DESIGN AND EQUIPMENT (Second Edition). By George D. Butler. Pp. 174. Illustrated. New York: The Ronald Press Co. \$6.

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- 1958 Official NCAA Guides: *Track and Field, Lacrosse.* (Each may be purchased for \$1 from The National Collegiate Athletic Bureau, Box 757, Grand Central Station, New York 17, N. Y.)
- *The Art of Officiating Sports* (2nd edition). By John W. Bunn. Pp. 388. Illustrated. Englewood Cliffs, N. J.: Prentice-Hall, Inc. (Completely updated edition covers 15 sports.)
- *1958 Camp Reference and Buying Guide.* Compiled by Editors of "Camping." Illustrated. Plainfield, N. J.: Galloway Publishing Co. \$2. (Positively a must for everyone connected with the operation of a summer camp.)
- *Modern Bodybuilding.* By D. G. Johnson and O. Heidenstam. Pp. 173. Illustrated. New York: Emerson Books, Inc. \$3.95. (A completely practical guide to muscle training and development.)
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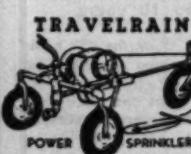
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## Football Champions

(Continued from page 57)

fact that their total offense figures were considerably less than those of the 1956 champions.

Only one coach reported an inability to capitalize upon the free substitution permitted by the high school rules. Boyd Sponaugle of Lancaster, Penna., went both ways with his starters, preferring to substitute individually. Joe Magee, coach of Chicago's city champs, Mendel Catholic, followed suit, but he had no choice since his league plays college rules.

At the other extreme was Varn Braasch, coach of West Phoenix, Ariz., who shuttled 10 men back and forth. But the man he left in both ways—235-lb. guard Wayne Magnusson — wound up on Scholastic Coach's All-American Team!

No significant changes in the avoid-dupos of the backs and linemen manifested themselves this year. In 1956, the average weights were 182 for linemen and 166 for backs. In 1957, the average weights were 183 and 167—an astonishing consistency. To play championship high school football, it would seem, you need 182½-pound linemen and 166½-pound backs!

Three teams displayed forward walls averaging 200 pounds or better. In fact, a glance at the table will show that our high school lads today pack more weight than their college brothers of 20 years ago. Coach C. M. Sarff of Bloom Township in suburban Chicago relays the meaty news that his defensive line averaged 214 pounds—and that all of them were juniors! Will he have trouble booking games for 1958?

Providence Central High managed to tie Mount Pleasant for the Rhode Island state crown with a line averaging only 155 pounds and a set of backs averaging a mere 150, but they were the great exception to the rule. Clary Anderson, coach of New Jersey's co-champions, Montclair H. S., offered the heaviest bunch of ball-carriers — a quartet averaging 184 pounds.

Scoring figures can be deceptive, but not in this instance. The great Ada H. S. eleven of Oklahoma led the list with 526 markers in 13 games, for a 40.5 average. Ballard High of Seattle, with 108 points in eight games, earned distinction as the champion with the lowest scoring average (13.5 points per game). But its tight defense, which allowed only four touchdowns, kept them undefeated.

## Basic Training for All Sports

(Continued from page 20)

justment of the muscle to the increased demands made upon it. If however this increased strength is maintained for a time it becomes fixated or anchored in the muscle.

After extensive daily training, a given level of strength can be maintained for longer than one year by strength training once every two weeks. We don't know yet the reason for this fixation of strength gained by slow training."

So much for static strength training. But perhaps the major problem in strength training isn't the precise method to be followed but rather the problem of motivating consistent year-round practice. Only the rare self-motivated athlete will do strength training week after week, month after month, with only some distant goal to lure him on. With no disparagement intended, most men need that carrot on a stick just six inches in front of their noses.

Such a toothsome carrot is now available in a newly packaged system called Circuit Training.<sup>7</sup> Its purpose is the development of a "hard core of fitness" for all physical activity, for all sports, rather than for the special fitness required for any special sport or activity.

It utilizes such common exercises as pull-ups, push-ups, rope swings, barbell presses, curls, lateral raises, sit-ups, bench-stepping, squat jumps, burpees, rope and ladder climbing, etc. Altogether, some 25 exercises are illustrated and described, none of which are in any way new.

But these exercises, or any others one might wish to use, are organized in such a fashion as to motivate their use every day. Performance is scored in two ways: (1) by reference to scoring tables, or (2) by the time required to make the circuit of exercises at a less than maximum level, for example at 60% of maximum level.

To take an example applicable to our sport, about 10 exercises would be selected which would develop muscular strength, endurance, and flexibility as well as circulo-respiratory efficiency. Apparatus would be erected around a small gymnasium or outdoors near the track and field. After several preliminary sessions, athletes would test themselves on maximum performance in these events.

After that, performance in each event would be only 60% of maxi-

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mum, but would be scored on the basis of the time required to complete the entire circuit of 10 events. Events would be selected so that total time required would entail only about 10 minutes.

In general, such activity would occur at the end of each day's training session, though some use the circuit as a warm-up device as well.

Space permits no further details, but it seems clear that the organization of strength and strength-endurance and flexibility exercises that can be included in Circuit Training provides a spirit of competition and fun that up to this point has been largely lacking.

By recording one's total score on all exercises, a clear record of improvement can be maintained; by competing on a time basis at 60% of one's own maximum, a reasonably fair basis for comparison with others is present, without the dangers of all-out weight-lifting efforts which concern so many sports coaches. Timed efforts will tend to produce carelessness in proper techniques of exercising, but this can be warned against and of course may not be as crucial as some of us think.

To date, Circuit Training isn't at all formalized. Final selection of exercises can be made by each coach in terms of what he considers important, practical, and within the limits of equipment and time at his disposal. It can be extremely simple as to both number and kind of exercises, or it can be very complex and require the major portion of a day's exercise period.

It's in no way a substitute for training in skill or endurance in any sport. But it should help to motivate a more firmly fixed base of fitness for all sports, might be an effective means of preventing certain sports injuries, and in any case should add some fun to sports training that all too often is just plain hard work.

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## Pitcher's Exercises

(Continued from page 27)

desirable. He "throws" with approximately the same motion as used in pitching; and as he progresses in his practice, he puts more and more tension on the cable.

### EXERCISES WITH BARBELLS AND DUMBBELLS

1. Exercises for the development of the rotators of the trunk and thighs. Two persons collaborate, between them pulling on a barbell with the hands separated about 5 feet. One man tries to rotate his trunk to the left, with the other man resisting as strongly as he can. The opposite movement is also undertaken in order to balance the muscular development.

This movement can be done with great force, and needn't be done more than 5 or 6 times a day, if the stress placed upon the movement is about 80% or more of the maximum stress that the individuals can develop<sup>2</sup>.

2. Using a very heavy barbell—so heavy that the individual won't be able to push it from his chest to overhead—have someone lift this barbell until the performer holds it at arm's length (in a supine position) in front of the shoulder. Keeping the arms straight, the athlete should push the barbell upward as far as possible. The movement probably won't be more than 20 centimeters at the most.

This activity is devised to develop the whole length of the serratus anterior muscles, which are extremely important in throwing a baseball, javelin, discus, or shot. This exercise should be used with almost the maximum weight the individual can lift, and should be repeated until he has done the exercise perhaps 10 times.

3. With the performer lying supine on a bench approximately 7' long, 20" high, and not over 1' wide, with his head just at the forward edge, have him hold a barbell in such a position that the upper arms

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<sup>2</sup>Muller, Erich A.: "The Regulation of Muscular Strength," *The Journal of The Association for Physical and Mental Rehabilitation*, March-April, 1957, p. 41.

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are in a straight line and in line with the shoulders, with the forearms bent at right angles to the elbows.

The performer should then permit the forearms to rotate backward—counterclockwise around the shoulders, as far as he possibly can, without over-straining the ligaments of the shoulders. Then he should rotate the upper arms until the forearms are vertical. In other words, the movement is to rotate the arms more than 90°.

The weight of the barbell should be as heavy as the individual can move it without undue strain. As he practices this activity, his shoulders should become more flexible so that he can rotate them farther and farther without strain, and the weight of the barbells should become progressively greater.

4. Lying supine on a bench, holding a barbell with the arms vertical: (a) with the palms forward, attempt to twist the barbell first inward and then outward. Because of the fact the hands are fixed on the barbells, the performer won't be able to accomplish much in the line of motion. But as he turns it first to one side and then to the other, he'll have a great deal of stress placed on the ligaments of the elbow.

(b) Now do the same thing with the palms facing backward.

Individuals not in good physical condition for javelin throwing, should start with this type of exercise about two months before beginning serious practice with the javelin.

For those who expect to continue from year to year, it would be an excellent practice to undertake such a series of activities about three times a week until the start of the competitive season.

### Outthink the Pitcher

*(Continued from page 30)*

you . . . He loses something with a man on base . . .

As a pitcher, you can translate some of this advice into trouble for the other team. I can't offer any rules for this, but once you develop an awareness your telepathic receiver may alert you.

As to the guess hitter, he'll always be a problem unless you can stack the percentages against him. If you have two pitches—say a fast ball and a curve—he has a 50-50 chance. Add a changeup and his chance drops to 33%. Add, say, a screwball and it becomes 25%. Providing of course you can get them all over the plate!

## High Hurdling the Gilbert Way

(Continued from page 11)

**Arms:** Approaching hurdle, coming off hurdle.

**Action Between Hurdles:** Body angle while running, head-knee-toe principle, eye focus, rhythm and bounce.

### Relaxation.

Now let's review each of these four points.

### THE FLIGHT

Gilbert rates very high in his use of the lead leg. Naturally gifted with a fearless attitude toward the barrier, his lead leg helps him perform a perfect split. In other words, he spreads over the hurdle in a way that maintains good sprinting action.

He takes off from seven feet away—far enough to keep the sprinting action I mentioned—with-out marring his balance and precision timing while clearing the barrier. During this action, the foot is thrust forward to a point where the bottom of the shoe can be clearly observed from the head-on position.

Although the knee is locked, the hips and ankles are not rigid but react with flexion enough to cushion the downward drive. The head is in alignment with the knee at the top of the barrier, with the torso well forward, bent deeply at the waist.

This mechanic is maintained long enough for the hurdler to pass over the barrier. Then the lead leg relaxes in the joint areas—hip, knee and ankle—preparing the athlete to land with the bounce and drive necessary to put him back into the running action that will follow.

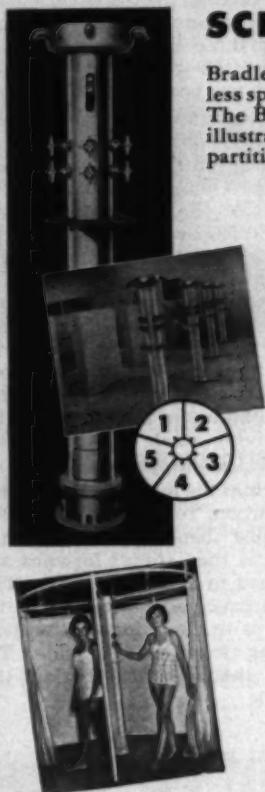
The lead leg helps determine the flight arch of the hurdler. Gilbert's arch is 11 feet 4 inches, which is considered ideal.

It's important for young hurdlers to avoid landing on the heel. Where this is done, each hurdle becomes a new race, since a pause or hesitation occurs. This can be prevented by having the hurdler stay high on his toes.

Most coaches advocate snapping the lead leg down immediately in descending from the barrier. On this point, remember this: If the snap-down isn't executed rhythmically, it will destroy the smoothness of the next running stride and the hurdler will lose his most needed mechanic—balance.

The TRAILING LEG with its hip

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circle and inverted toe may be considered the second part of the flight. In this phase, Gilbert's body is highly pitched forward, with the weight resting over the chest and knee. His trailing leg is semi-tucked, forming three horizontal right angles, with the toe turned up into an inverted toe position.

To understand this phase more thoroughly, observe the inverted toe clearing in the picture sequence (Fig. 6). The position of the foot helps raise the knee long enough for it to pass over the hurdle without molesting the barrier. This is very important; make your hurdler practice it in his exercises. Gilbert is highly drilled in this principle.

After this, he's ready to start his hip circle, which is a recovery position of the trailing leg. This gets the trailing leg in alignment for the next driving stride off the barrier.

Gilbert executes it this way:

He brings his leg to an under-the-arm position, rotating it into a 90° angle just beneath the shoulder. The leg is then thrust forward and downward in a pawing action. This must be executed with speed if the hurdler is to move forward without oscillating from side to side. The hurdler should try to perfect this mechanic.

### HURDLING BUGABOO

One of the biggest curses in hurdling is knocking down or hitting barriers throughout the race. This is why the inverted toe and flexed ankle of the trailing leg is important. The racer knocks down hurdles when he becomes overanxious or loses momentum on the upward flight.

The trailing leg suffers as a result, and speed is reduced. To compensate for this, the hurdler often turns his trailing leg toe down, thus striking the barrier and losing speed, timing, and balance.

To overcome this fault, young hurdlers should add the inverted toe to their repertoire of exercises, as I said before. They should make this an automatic action if possible.

A better inverted toe would have helped Gilbert in two major races last year. In the Washington Star Games, Gilbert was leading Calhoun until the final hurdle. He then dropped his toe, crashed the barrier, and fell off balance. Before he could recover, Calhoun passed him and went on to establish a new world record.

At the Compton Invitational, the same situation prevailed—Gilbert led the field (which included Milt Campbell and Lee Calhoun) over

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the first eight flights by about two yards. He then hit the ninth and then the tenth, losing valuable time. Milt Campbell exploded off these hurdles to beat Gilbert in a photo finish world record 13.4 performance. The inverted toe caused Gilbert's knee level to drop—and this probably cost him a world record.

This is just a couple of examples of what can happen to a hurdler when he makes one mistake in a fast race. I could cite many more examples, but I hope the above will suffice.

#### ARM ACTION

There are two variations in the use of the arms in approaching the hurdle—the single-arm and the double-arm thrusts. In the double, both arms are extended at the start of the body pitch, with the arm opposite the lead leg being extended farther than the one nearer the lead leg. In the single-arm thrust, one arm is extended and the other is back.

Gilbert uses the single-arm thrust, a style that requires more coordination. The writer tried to get Gilbert to use the double-arm action, but it tended to tighten him up in the shoulder area. So he was switched back to the single.

If your boy uses the double-arm method, get him to thrust with all the vigor possible in order to add to his balance during the flight.

The arms also play a major role coming off the hurdle. Gilbert has the ability to remain in balance. To achieve this balance, his arms are in line with the maximum angle of the clearance, thus giving him ample room to drive to the next hurdle.

#### ACTION BETWEEN HURDLES

At this point of the race, Gilbert is at what I consider the ideal position—an angle of 75°. He puts great accent on the pushing, not the pulling, action. Too many athletes depend on pulling.

Gilbert's head-to-toe alignment allows him to put all his body weight into the strides to follow. He also remains high on his toes. This gives him the necessary bounce that will help him maintain his rhythm and drive without much deceleration.

Don't require your boy to swing his arms as a sprinter. This will establish a bad habit—lifting the trunk too high.

A hurdler performing at his best keeps his eyes glued to the top of the barriers throughout the race. He never looks to see if the trailing foot is clearing the hurdle. He must also remember that rhythm and



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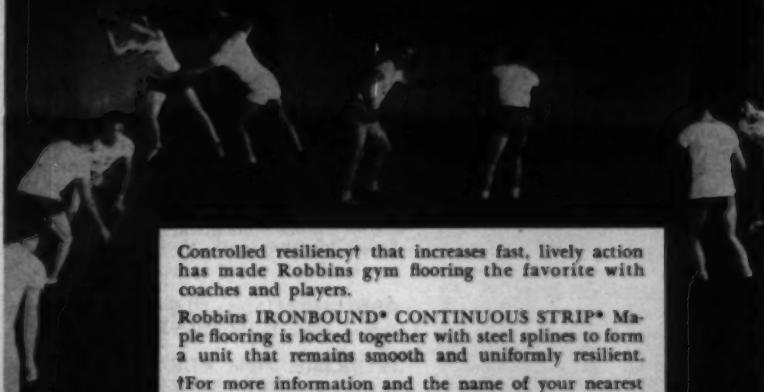
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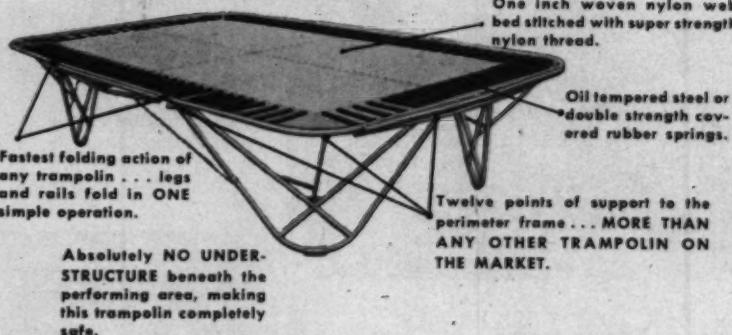
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bounce are essential phases of top hurdling.

#### RELAXATION

Learning to relax is another prime factor that every good hurdler must recognize. Gilbert has been improving steadily in this respect. Find the method that best suits your athlete and help him acquire this art. You'll see the results right away—on your stopwatch!

Gilbert's training program is as follows:

**MONDAY:** Jog 660, walk the remainder of the 880 (last 220). Warm up. Run generally for about 15 minutes: five or six 100-yard sprints (11.5 to 13) and five 330-yard runs (45.0 to 50).

Calisthenics—10 minutes, emphasizing stretching in the crotch.

Rest . . . by walking for 10 minutes. 25 to 35 hip-circles or trailing-leg exercises (over side of hurdle).

Jog 660, walk the remainder of the 880 (last 220). Warm down.

**TUESDAY:** Jog 440 at a faster speed than  $\frac{1}{2}$ . Walk 440. Warm up.

Calisthenics . . . vigorously for 15 minutes.

Rest by . . . walking. 25-50 hip circles, plus 50 to 100 high kicks.

Take starts to the first hurdle at all-out speed, concentrating on balance (6-8).

Jog 440 slowly.

Run four 300's at about 37 seconds. Jog 660, walk the remainder of 880 (last 220). Warm down.

**WEDNESDAY:** Same as Monday.

**THURSDAY:** Same as Tuesday.

**FRIDAY:** General running on the grass for about 20 minutes, at a speed a little faster than a slow jog.

**SATURDAY:** Competition.

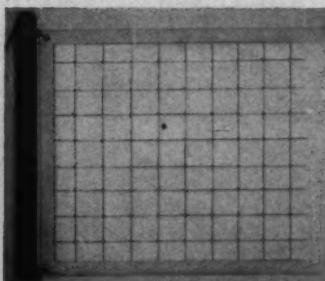
(Ed. Note: As you've probably noted in the papers, Gilbert has been vindicating his coach's confidence in him with one smashing triumph after another in the big indoor meets. What's more, his closest competitor in some of these meets has been another Ross-trained hurdler—teammate Francis Washington.)

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**Beats All Competition in Quality and Price**



Note how tie strings hold the net in tension.

Tougher, Stretchfree, More Durable!—This new, standard, 32-foot volleyball net is made of fine linen seine twine, and combines linen's big advantages in a net that looks better, lasts longer. It's priced low, too—a more economical net in many ways. Offered in two styles by both of America's two leading lines of sports netting . . .

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**INVINCIBLE** Style #LB-3230-VBC (steel cable), and #LB-3230-VB (rope cable).

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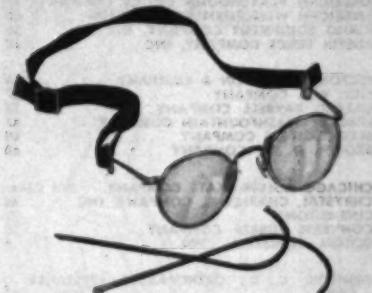
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NAME

(Principal, coach, athletic director, physical director)

## ENROLLMENT

SCHOOL

ADDRESS

CITY

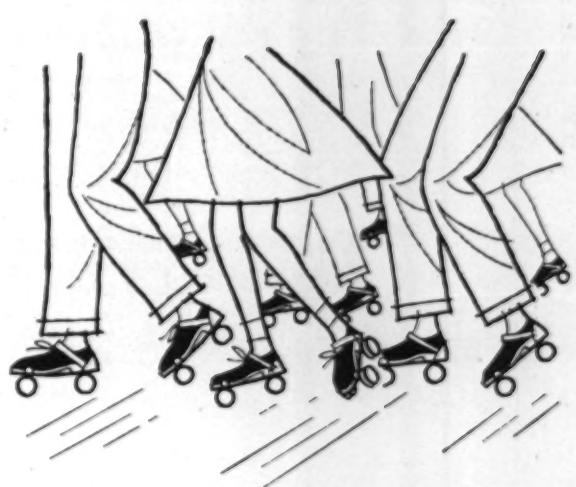
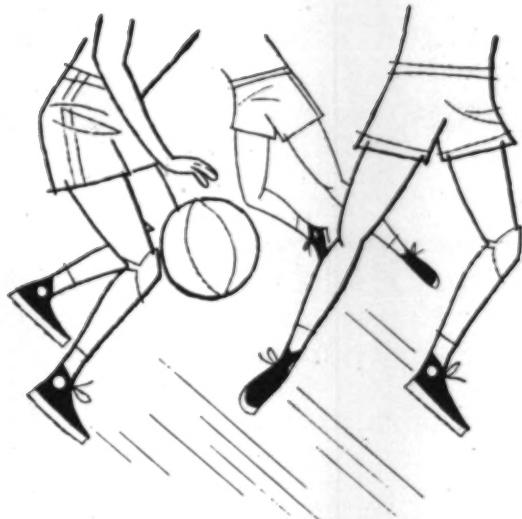
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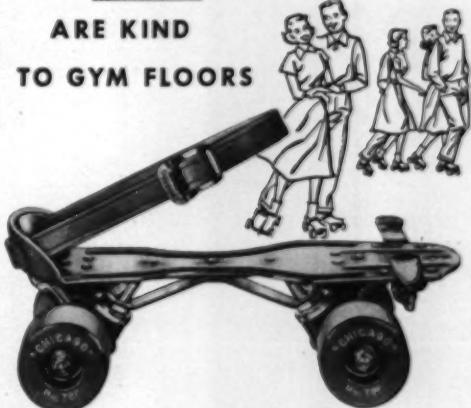
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